SECRETARIAT ON

SCIENCE,

RESEARCH AND DEVELOPMENT

SCIENTIFIC ACTIVITIES OF THE GOVERNMENT OF BRITISH COLUMBIA

1981-82 Survey Results

A report prepared by:

The Science Statistics Centre
Education, Science and Culture
Division,
STATISTICS CANADA

Revised February 1983

TABLE OF CONTENTS

		Page
Foreword		7
Highlights		
TEXT TABLE I.	B.C. Government Expenditures	9
FIGURE I.	B.C. Government Current Expenditures on Science, by Activity	10
TEXT TABLE II.	B.C. Government Expenditures on Science by Activity and Performer	11
TEXT TABLE III.	Personnel Engaged in B.C. Government Scientific Activities by Category and Ministry	12
TEXT TABLE IV.	Objectives of B.C. Government Science Expenditures, by Ministry	13

Statistical Tables

	Natural Sciences		Social Sciences	
	Table	Page	Table	Page
Historical Series, 1976-77 to 1982-83:				
Total Expenditures:				
by Activity	1	17	21	45
by Ministry	2	18	22	46
by Performer	3	19	23	47
Current Expenditures on R & D:				
by Performer	4	20	24	48
by Ministry	5	21	25	49
Ministerial Personnel Engaged in Scientific Activities, by Activity and Category	6	22	26	50
Expenditures in 1981-82 Fiscal Year:				
Total Expenditures:				
by Sources of Funds	7	23	27	51
by Activity and Performer	8	25	28	53
by Ministry and Performer	9	26	29	54

TABLE OF CONTENTS
(Continued)

Statistical Tables - Concluded

	Natural Sciences		Social Sciences	
	Table	Page	Table	Page
Current Expenditures by Ministry and Activity	10	27	30	55
Current Expenditures on R & D by Ministry and Performer	11	28	31	56
Detail of Intramural Expenditures	12	29	32	57
Ministerial Personnel Engaged in Scientific Activities, by Ministry	13	31	33	59
Application of Expenditures:				
by Ministry	14	32	34	60
by Application and Activity	15	36	35	64
Estimates for 1982-83 Fiscal Year:				
Total Expenditures:				
by Activity and Performer	16	37	36	65
by Ministry and Performer	17	38	37	66
Current Expenditures by Ministry and Activity	18	39	38	67
Current Expenditures on R & D by Ministry and Performer	19	40	39	68
Personnel Engaged in Scientific Activities, by Ministry	20	41	40	69

	Natural Sciences		Social Sciences	
	Chart	Page	Chart	Page
Statistical Charts				
Expenditures on Activities, 1976-77 to 1982-83	1	16	5	44
Performers of Activities, 1981-82	2	24	6	52
Personnel Engaged in Intramural Activities, 1981-82	3	30	7	58
Application of Expenditures, 1981-82	4	35	8	63

TABLE OF CONTENTS
(Concluded)

	Page
Appendix	
Ministries Included in the Survey (Historical)	73
Definitions	76
The Respondents	78
Indicators of Provincial Scientific Activities	83

The following symbols are used in this report:

- \- figures are nil or too small to be expressed
- NA figures are not available or not applicable
- (r) revised figures
- (e) estimated figures

FOREWORD

This is a report on the results of the sixth survey of scientific activities funded by the Government of British Columbia. It covers the provincial fiscal years 1981-82 (actual) and 1982-83 (estimate). The survey was conducted the last week of May and the first week in June by Janet Thompson and Humphrey Stead of Statistics Canada with the co-operation and assistance of Dr. M. Cairns, Associate Director, Research Secretariat, Mr. B. Stevenson, Director, Science and Technology, Ministry of Universities, Science and Communications, and Mr. N. Aleksenko, Director of Finance, Ministry of Universities, Science and Communications, and his staff.

Other provinces taking part in these science surveys are Ontario, Saskatchewan and Alberta. Reports for these provinces are available on request from the provincial department sponsoring the survey. National aggregates are published by Statistics Canada in the Annual Review of Science Statistics (Catalogue No. 13-212) and R & D Expenditures in Canada 1963-1982 (SS 82-5).

The 1982 survey of provincial government scientific activities has produced reasonable indicators of scientific involvement at the ministry or agency level. This success is largely due to the goodwill and efforts of officials of the responding ministries. The assistance provided by the Research Secretariat and the Ministry of Universities, Science and Communications is also gratefully acknowledged.

HIGHLIGHTS

During the 1981-82 fiscal year the B.C. government expenditures on scientific activities were equal to $73.4 million. This is 1.1% of the total budgetary expenditures of the government for that year. Compared to the 1980-81 expenditures on science, there is a slight decrease in the B.C. government science activities.

TEXT TABLE I. B.C. Government Expenditures

Ministry	1980-81		1981-82	
	Total estimated expenditures	Total science expenditures	Total estimated expenditures	Total science expenditures
	($ millions)			
Energy, Mines & Petroleum Resources	21.1	4.5	30.9	4.8
Environment	71.1	18.3	81.0	19.4
Forests	156.9	13.3	162.6	11.2
Health(1)	1,550.4	5.1	1,975.1	4.8
Industry & Small Business Development	59.1	11.0	147.0	8.2
Provincial Secretary & Government Services	196.3	5.6	229.2	5.6
Universities, Science & Communications(2)	292.5	7.0(3)	359.3	8.5
Other	3,169.1	10.1	3,610.1	10.9
**Total ..... **	**5,536.5**	**74.9**	**6,595.2**	**73.4**

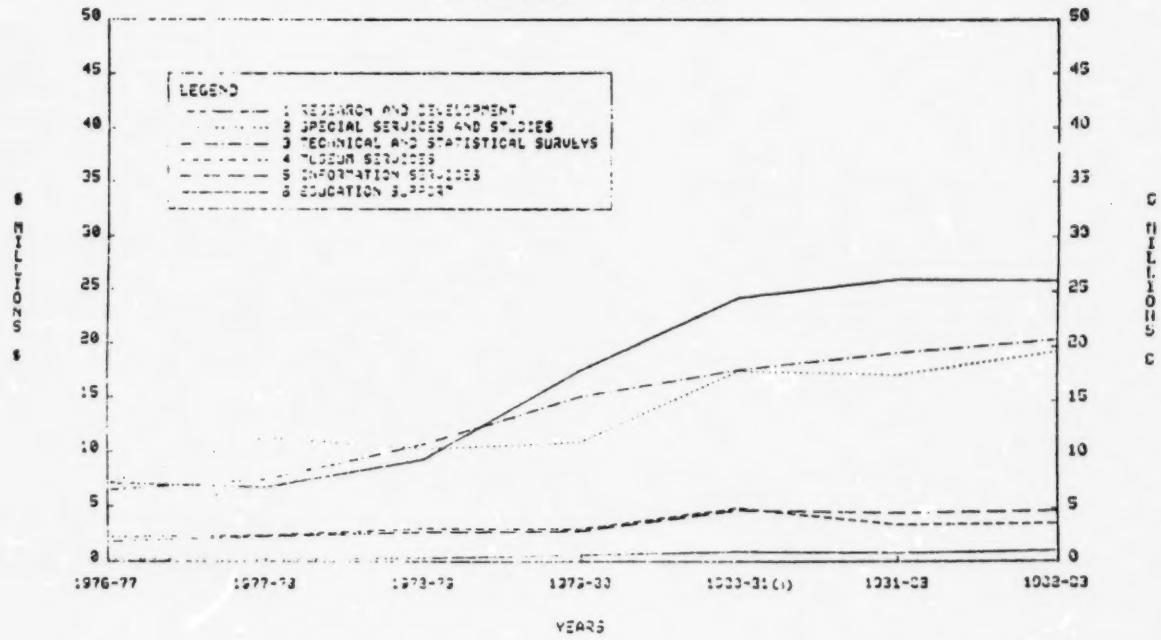
(1) Includes expenditures of the Health Care Research Foundation.
(2) Includes expenditures of the Science Council of B.C.
(3) Does not include a one time grant of $14.4 million to the Discovery Foundation nor a $2 million equipment grant to the university sector made by the Ministry of Universities, Science and Communications.

Of the total 1981-82 B.C. government science expenditures, 69% ($50.3 million) is for natural science activities. Of this, $25.7 million is spent on research and development. The remaining $24.6 million is for related scientific activities. Major support of research and development comes from the Ministries of Forests, Universities, Science & Communications, the Science Council and the Health Care Research Foundation. The technical services activity is the major RSA, supported mainly by the Ministry of Environment.

In the social sciences, which account for 21% ($23.8 million) of the total 1981-82 B.C. government science expenditure, the principal activity is special services and studies. The Ministries of Industry & Small Business Development and Finance are major supporters of this activity.

Figure 1

B.C. GOVERNMENT CURRENT EXPENDITURES ON SCIENCE, BY ACTIVITY, 1967-77 TO 1983-83



(1) Does not include a one time grant of $14.4 million to the Discovery Foundation nor a $2 million equipment grant to the university sector made by the Ministry of Universities, Science and Communications.

The provincial government itself performed 50% of R & D activities and 77% of related scientific activities in 1981-82. The remainder is performed extramurally. Industry is the largest extramural performer, spending $10.5 million in support of science. Next is the University sector spending $6.2 million.

Text Table II illustrates 1981-82 science expenditures of the B.C. Government by activity and sector of performance.

TEXT TABLE II. B.C. Government Expenditures on Science by Activity and Performer, 1981-82

Activity	Intramural	Industry	Universities	B.C. Research Council	Other	Total
	($ millions)					
Current expenditures:						
R & D	13.5	2.9	6.2	1.5	2.1	26.1
Education support	0.4	-	-	-	0.4	0.8
Technical surveys	13.8	1.7	-	-	0.2	15.7
Statistical surveys	2.2	0.4	-	-	1.1	3.7
Information services	3.6	0.7	-	-	0.3	4.6
Special services & studies	11.3	4.8	-	0.5	0.8	17.4
Museum services	3.5	-	-	-	-	3.5
Sub-total	48.3	10.5	6.2	2.0	4.9	71.9
Capital expenditures	1.5	NA	NA	NA	NA	1.5
Total	**49.8**	**10.5**	**6.2**	**2.0**	**4.9**	**73.4**

Person-years involved in science activities total 1,421. This is 4% of the total B.C. government person-years. Categories identified are technical, scientific and professional and other. Text Table III illustrates the number of person-years involved in each category.

TEXT TABLE III. Personnel Engaged in B.C. Government Scientific Activities by Category and Ministry, 1981-82

Ministry	Scientific and professional	Technical	Other	Total
	person-years			
Attorney General	29	1	20	50
Energy, Mines & Petroleum Resources	35	25	14	74
Environment	144	375	51	570
Forests	92	124	39	255
Health	27	3	33	63
Industry & Small Business Development	63	5	30	98
Provincial Secretary & Government Services	55	91	36	182
Other	74	19	36	129
Total	**519**	**643**	**259**	**1,421**

Objectives of scientific expenditures by the B.C. government are shown in Text Table III. The objective with the largest expenditures in 1981-82 is natural resources. The three major Ministries supporting natural resources are Forests, Environment, and Energy, Mines and Petroleum Resources.

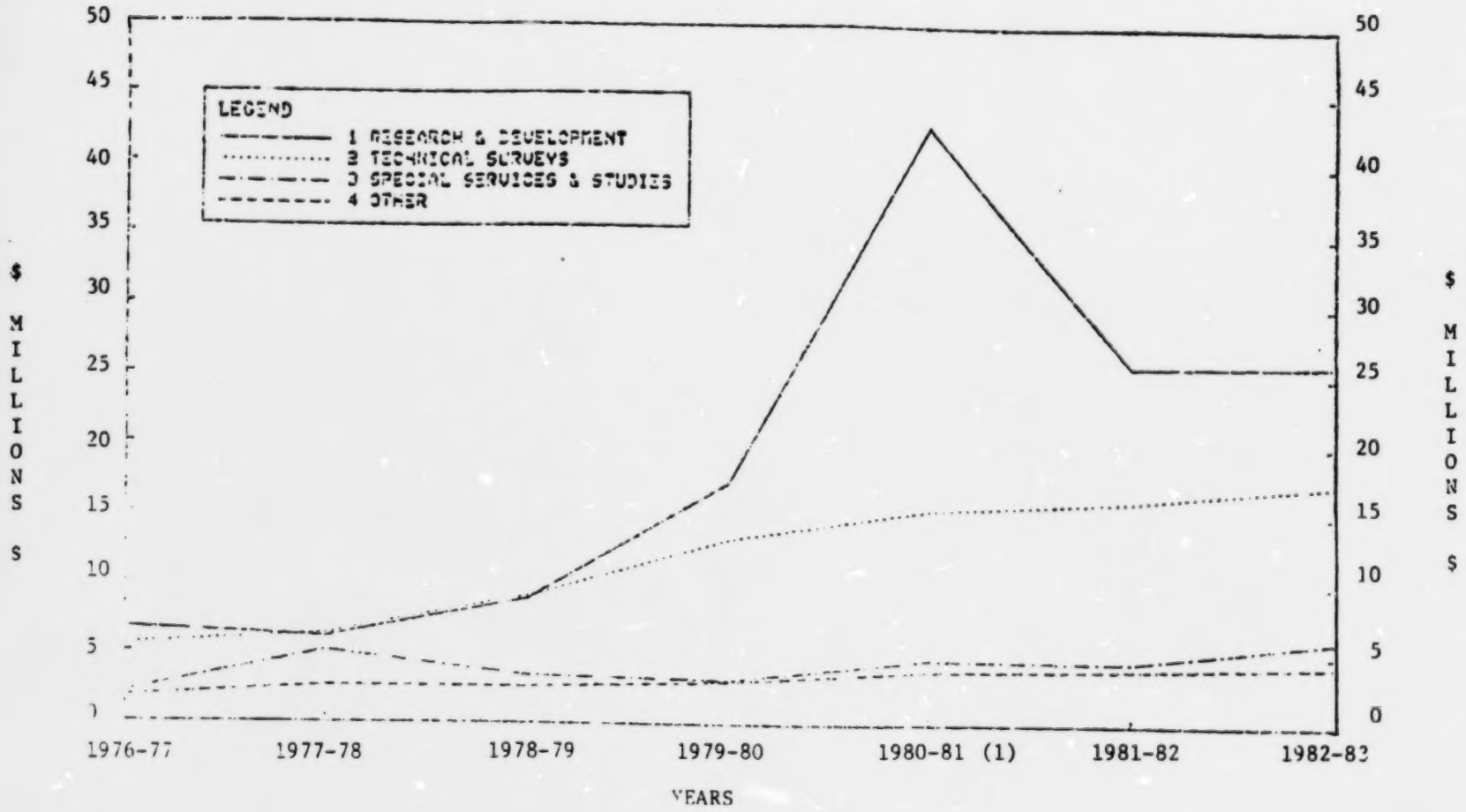
TEXT TABLE IV. Objectives of B.C. Government Science Expenditures, by Ministry, 1981-82

Ministry	Food and related areas	Health	Industrial & economic development	Natural resources	Social development and related areas	Transportation	Other	Total
	($ millions)							
Energy, Mines & Petroleum Resources	-	-	-	4.8	-	-	-	4.8
Environment	3.4	1.1	-	11.6	2.4	0.7	0.2	19.4
Forests	-	-	-	11.2	-	-	-	11.2
Health(1)	-	4.8	-	-	-	-	-	4.8
Industry & Small Business Development	-	0.1	2.3	3.6	1.1	1.1	-	8.2
Provincial Secretary & Government Services	-	-	-	-	5.0	-	0.9	5.9
Universities, Science & Communications(2)	1.8	-	1.6	3.2	-	-	1.9	8.5
Other	1.8	-	-	-	7.8	1.0	-	10.6
**Total	**7.0**	**6.0**	**3.9**	**34.4**	**16.3**	**2.8**	**3.0**	**73.4**

(1) Includes expenditures of the Health Care Research Foundation.
(2) Includes expenditures of the Science Council of B.C.

Natural Sciences

CHART 1
GOVERNMENT OF BRITISH COLUMBIA
EXPENDITURES ON ACTIVITIES IN THE NATURAL SCIENCES 1976-77 TO 1982-83



(1) Includes $14.4 million grant to Discovery Foundation.

TABLE 1. Total Expenditures in the Natural Sciences, by Activity, 1976-77 to 1982-83

Activity	1976-77(r)	1977-78(r)	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Research & development:							
In-house	3,966	4,366	5,032	5,988	11,427	12,096	13,707
Contracts	874	733	1,427	3,766	2,184	2,139	2,070
Grants	1,538	830	1,836	6,538	26,295(1)	10,288	8,476
Research fellowships	-	-	240	460	472	859	1,012
Sub-total	6,378	5,929	8,535	16,752	40,378	25,382	25,265
Related scientific activities:							
Education support	101	110	123	179	243	233	356
Technical surveys	5,230	5,834	8,709	12,837	14,836	15,689	16,941
Information services	860	1,419	1,409	1,763	2,404	2,685	2,850
Special services & studies	2,005	4,686	3,205	2,984	4,413	4,434	6,007
Museum services	790	886	987	977	1,093	1,015	1,020
Sub-total	8,986	12,935	14,433	18,740	22,989	24,056	27,174
Capital expenditures:							
Research & development ...	265	184	351	357	2,276(2)	296	570
Related scientific activities	453	1,104	675	523	766	535	566
Sub-total	718	1,288	1,026	880	3,042	831	1,136
Total	**16,082**	**20,152**	**23,994**	**36,372**	**66,409**	**50,269**	**53,575**

(1) Includes $14.4 million grant to Discovery Foundation.
(2) Includes $2.0 million research equipment grant to Universities in B.C.

TABLE 2. Total Expenditures in the Natural Sciences, by Ministry or Agency, 1976-77 to 1982-83

Ministry or Agency	1976-77(r)	1977-78(r)	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Agriculture	652	788	1,243	1,519	1,558	1,785	1,510
Economic Development	320	320	320	NA	NA	NA	NA
Education, Science & Technology	NA	NA	724	NA	NA	NA	NA
Energy, Mines & Petroleum Resources	NA	NA	2,469	3,863	4,493	4,845	6,252
Energy, Transport & Communications	NA	951	NA	NA	NA	NA	NA
Environment	5,912	8,074	9,525	14,886	18,280	19,304	20,409
Forests	3,165	4,087	6,127	7,318	13,240	10,[illegible]	13,572
Health	368	384	-	83	43	65	8
Health Care Research Foundation	NA	NA	1,332	3,449	3,556	3,033	3,033
Highways	242	292	NA	NA	NA	NA	NA
Industry & Small Business Development	NA	NA	NA	420	-	-	-
Lands, Parks & Housing	NA	NA	100	76	104	12	12
Mines & Petroleum Resources	2,281	2,318	NA	NA	NA	NA	NA
Municipal Affairs & Housing	750	105	NA	NA	NA	NA	NA
Provincial Secretary & Government Services	NA	NA	1,460	1,480	1,640	1,640	1,640
Provincial Secretary & Travel Industry	1,287	1,352	NA	NA	NA	NA	NA
Recreation & Conservation ..	1,105	1,481	NA	NA	NA	NA	NA
Science Council of B.C.	NA	NA	NA	NA	5,000	5,840	4,212
Transportation, Communications & Highways	NA	NA	694	NA	NA	NA	NA
Transportation & Highways ..	NA	NA	NA	202	120	151	130
Universities, Science & Communications	NA	NA	NA	3,076	18,375(1)	2,657	2,797
Total	**16,082**	**20,152**	**23,994**	**36,372**	**66,409**	**50,269**	**53,575**

(1) Includes $14.- million grant to Discovery Foundation.

Government of British Columbia

TABLE 3. Total Expenditures in the Natural Sciences, by Performer, 1976-77 to 1982-83

Performer	1976-77(r)	1977-78(r)	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Intramural	13,536	17,432	19,089	25,092	33,999	33,532	37,582
Industry	822	1,150	1,651	4,340	5,421	6,066	5,444
Universities	877	770	1,651	5,517	9,129	6,138	5,151
Hospitals and health organizations	-	-	123	164	279	124	124
B.C. Research Council ..	351	328	320	627	1,874	1,914	2,189
Other	496	472	1,160	632	15,707(1)	2,495	3,085
**Total ..... **	**16,082**	**20,152**	**23,994**	**36,372**	**66,409**	**50,269**	**53,575**

(1) Includes $14.- million grant to Discovery Foundation.

TABLE 4. Current Expenditures on R & D in the Natural Sciences, by Performer, 1976-77 to 1982-83

Performer	1976-77(r)	1977-78(r)	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Intramural	4,101	4,499	5,331	6,918	12,004	12,732	14,534
Industry	767	78	451	3,366	2,147	2,938	1,878
Universities	839	670	1,485	5,482	9,061	6,127	5,140
Hospitals and health organizations	(1)	-	123	164	279	124	124
B.C. Research Council .	351	320	320	627	1,874	1,494	1,627
Other	320	362	825	195	15,013(2)	1,967	1,962
**Total	**6,378**	**5,929**	**8,535**	**16,752**	**40,378**	**25,382**	**25,265**

(1) In 1976-77 Hospitals and health organizations were included in Other performers.
(2) Includes $14.4 million grant to Discovery Foundation.

TABLE 5. Current Expenditures on R & D in the Natural Sciences, by Ministry or Agency, 1976-77 to 1982-83

Ministry or Agency	1976-77(r)	1977-78(r)	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Agriculture	225	120	531	682	682	831	486
Economic Development	320	320	320	NA	NA	NA	NA
Education, Science & Technology	NA	NA	424	NA	NA	NA	NA
Energy, Mines & Petroleum Resources	NA	NA	905	2,387	1,479	1,370	1,389
Energy, Transport & Communications	NA	-	NA	NA	NA	NA	NA
Environment	145	220	1,106	1,865	2,160	2,170	1,834
Forests	2,505	2,989	3,376	4,364	8,846	9,626	11,776
Health	334	350	-	83	43	5	-
Health Care Research Foundation	NA	NA	1,332	3,449	3,556	3,033	3,033
Highways	125	195	NA	NA	NA	NA	NA
Industry & Small Business Development	NA	NA	NA	420	-	-	-
Lands, Parks & Housing	NA	NA	-	-	-	-	-
Mines & Petroleum Resources	1,074	911	NA	NA	NA	NA	NA
Municipal Affairs & Housing	750	30	NA	NA	NA	NA	NA
Provincial Secretary & Government Services	NA	NA	360	380	420	420	420
Provincial Secretary & Travel Industry	319	335	NA	NA	NA	NA	NA
Recreation & Conservation	581	459	NA	NA	NA	NA	NA
Science Council of B.C.	NA	NA	NA	NA	5,000	5,840	4,212
Transportation, Communications & Highways	NA	NA	181	NA	NA	NA	NA
Transportation & Highways	NA	NA	NA	52	48	54	50
Universities, Science & Communications	NA	NA	NA	3,070	18,144(1)	2,033	2,065
Total	6,378	5,929	8,535	16,752	40,378	25,382	25,265

(1) Includes $14.4 million grant to Discovery Foundation.

TABLE 6. Personnel Engaged in Scientific Activities in the Natural Sciences, by Activity and Category, 1976-77 to 1982-83

Activity and Category	1976-77(r)	1977-78(r)	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	(person-years)						
Research & development:							
Scientific & professional .	67	72	81	110	132	134	147
Technical	61	61	66	71	144	148	136
Other	36	35	36	47	30	42	44
Sub-total	164	168	183	228	306	324	327
Related scientific activities:							
Scientific & professional .	145	182	178	187	144	162	189
Technical	197	286	302	365	399	410	398
Other	71	93	89	93	81	84	81
Sub-total	413	561	569	645	624	656	668
Total natural science activities:							
Scientific & professional..	212	254	259	297	276	296	336
Technical	258	347	368	436	543	558	534
Other	107	128	125	140	111	126	125
**Total ..... **	**577**	**729**	**752**	**873**	**930**	**980**	**995**

TABLE 7. Total Expenditures in the Natural Sciences, by Sources of Funds, 1981-82

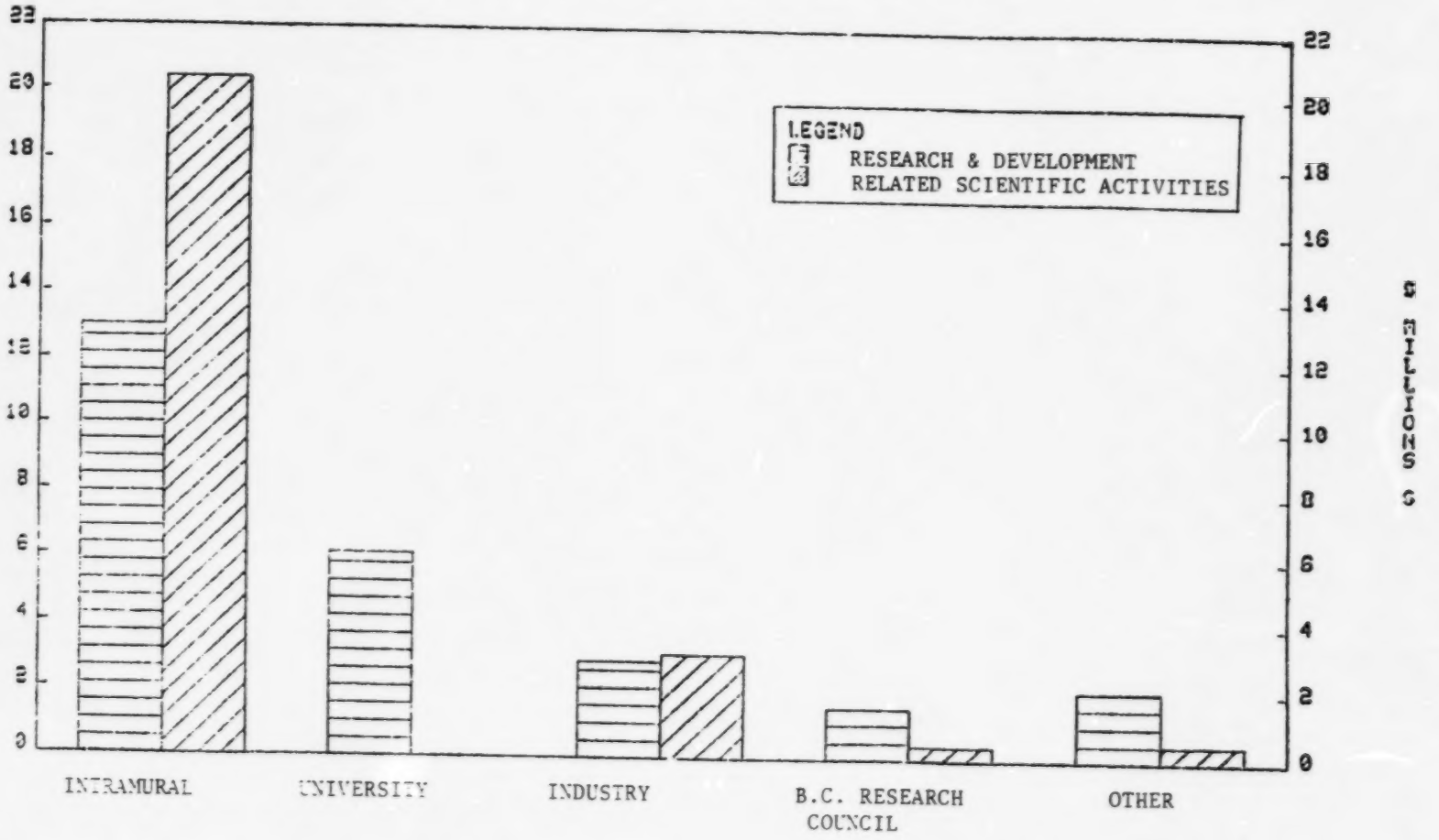
Ministry or Agency	Ministerial budget	Transfers from other ministries	Transfers from federal government	From other sources	Total
	($000)				
Agriculture & Food	1,442	-	343	-	1,785
Energy, Mines & Petroleum Resources	3,942	-	903	-	4,845
Environment	18,426	175	650	53	19,304
Forests	10,839	31	67	-	10,937
Health	65	-	-	-	65
Health Care Research Foundation	-	-	-	3,033(1)	3,033
Lands, Parks & Housing	12	-	-	-	12
Provincial Secretary & Government Services	1,590	50	-	-	1,640
Science Council of B.C.	-	5,840(2)	-	-	5,840
Transportation & Highways	151	-	-	-	151
Universities, Science & Communications	2,657	-	-	-	2,657
**Total	**39,124**	**6,096**	**1,963**	**3,086**	**50,269**

(1) Transferred from the B.C. Lotteries Fund.
(2) Transferred from the Ministry of Universities Science and Communications.

CHART 2

GOVERNMENT OF BRITISH COLUMBIA

PERFORMERS OF ACTIVITIES IN THE NATURAL SCIENCES 1981-82



Government of British Columbia

TABLE 8. Total Expenditures in the Natural Sciences, by Activity and Performer, 1981-82

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Research & development							
In-house	12,096	-	-	-	-	-	12,096
Contracts	241	686	445	-	-	767	2,139
Grants	395	2,154	4,942	124	1,494	1,179	10,288
Research fellowships	-	98	740	-	-	21	859
Sub-total	12,732	2,938	6,127	124	1,494	1,967	25,382
Related scientific activities							
Education support	140	-	4	-	-	89	233
Technical surveys	13,840	1,673	-	-	-	176	15,689
Information services	2,428	-	7	-	-	250	2,685
Special services & studies	2,546	1,455	-	-	420	13	4,434
Museum services	1,015	-	-	-	-	-	1,015
Sub-total	19,969	3,128	11	-	420	528	24,056
Capital expenditures							
Research & development	296	NA	NA	NA	NA	NA	296
Related scientific activities	535	NA	NA	NA	NA	NA	535
Sub-total	831	NA	NA	NA	NA	NA	831
Total	33,532	6,066	6,138	124	1,914	2,495	50,269

TABLE 9. Total Expenditures in the Natural Sciences, by Ministry or Agency and Performer, 1981-82

Ministry or Agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Agriculture & Food	947	686	152	-	-	-	1,785
Energy, Mines & Petroleum Resources	2,657	1,634	69	-	-	485	4,845
Environment	17,575	1,494	149	-	27	59	19,304
Forests	9,898	-	296	-	-	743	10,937
Health	65	-	-	-	-	-	65
Health Care Research Foundation	22	-	2,830	124	-	57	3,033
Lands, Parks & Housing	-	-	4	-	-	8	12
Provincial Secretary & Government Services	1,640	-	-	-	-	-	1,640
Science Council of B.C. ...	340	2,252	2,638	-	467	143	5,840
Transportation & Highways .	151	-	-	-	-	-	151
Universities, Science & Communications(1)	237	-	-	-	1,420	1,000	2,657
**Total ..... **	**33,532**	**6,066**	**6,138**	**124**	**1,914**	**2,495**	**50,269**

(1) Excludes $5.8 million granted to the Science Council of B.C.

Government of British Columbia

TABLE 10. Current Expenditures in the Natural Sciences, by Ministry or Agency and Activity, 1981-82

Ministry or Agency	Research and development	Education support	Technical surveys	Information services	Special services and studies	Museum services	Total
	($'000)						
Agriculture & Food	831	-	-	864	90	-	1,785
Energy, Mines & Petroleum Resources	1,370	109	821	615	1,930	-	4,845
Environment	2,170	10	14,460	876	1,157	15	18,688
Forests	9,626	-	408	98	590	-	10,722
Health	5	-	-	-	60	-	65
Health Care Research Foundation	3,033	-	-	-	-	-	3,033
Lands, Parks & Housing	-	4	-	-	8	-	12
Provincial Secretary & Government Services	420	110	-	110	-	1,000	1,640
Science Council of B.C. ...	5,840	-	-	-	-	-	5,840
Transportation & Highways .	54	-	-	-	97	-	151
Universities, Science & Communications	2,033	-	-	122	502	-	2,657
**Total ..... **	**25,382**	**233**	**15,689**	**2,685**	**4,434**	**1,015**	**49,438**

Government of British Columbia

TABLE 11. Current Expenditures on R & D in the Natural Sciences, by Ministry or Agency and Performer, 1981-82

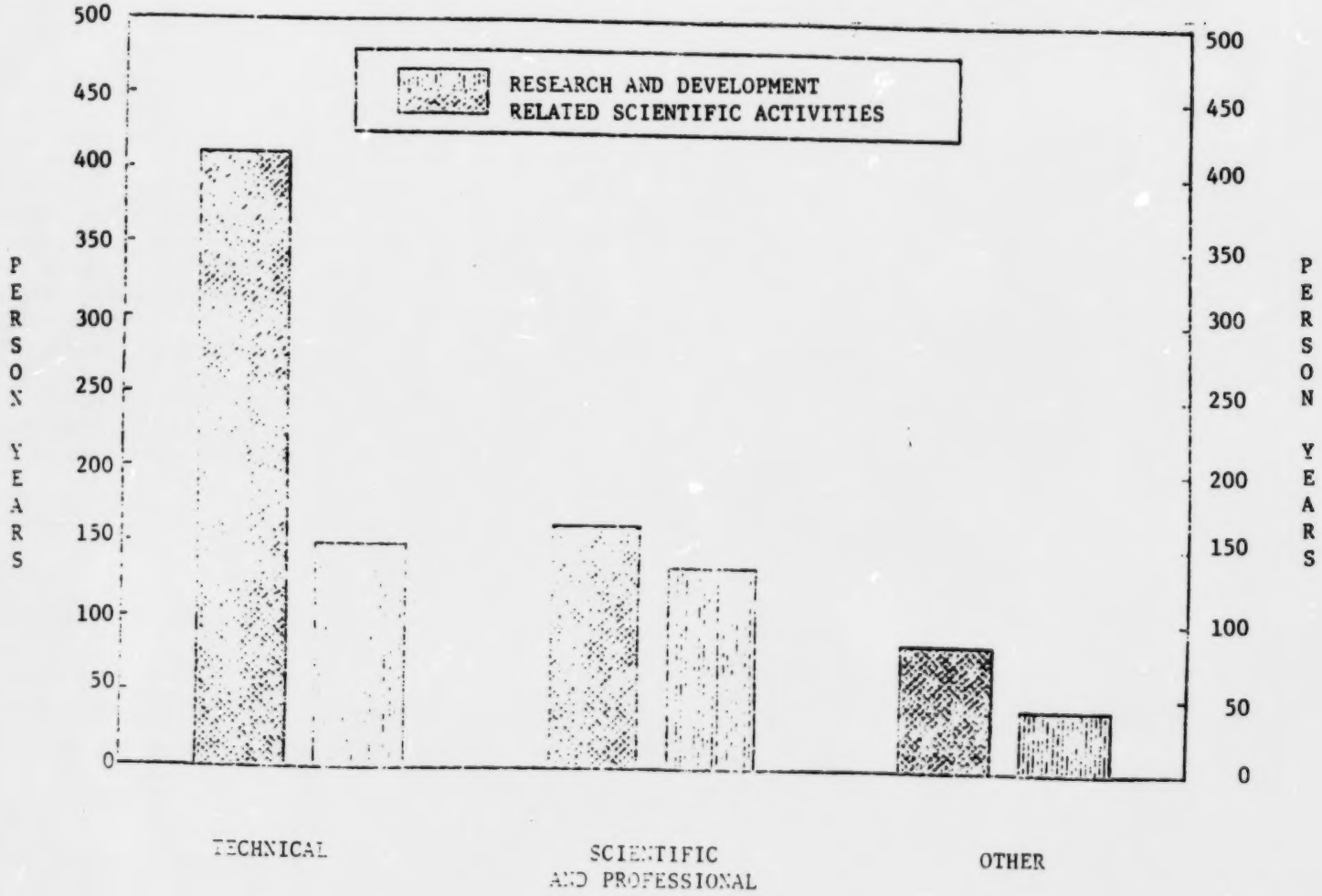
Ministry or Agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Agriculture & Food	-	686	145	-	-	-	831
Energy, Mines & Petroleum Resources	1,301	-	69	-	-	-	1,370
Environment	1,935	-	149	-	27	59	2,170
Forests	8,622	-	296	-	-	708	9,626
Health	5	-	-	-	-	-	5
Health Care Research Foundation	22	-	2,830	124	-	57	3,033
Lands, Parks & Housing	-	-	-	-	-	-	-
Provincial Secretary & Government Services	420	-	-	-	-	-	420
Science Council of B.C.	340	2,252	2,638	-	467	143	5,840
Transportation & Highways ..	54	-	-	-	-	-	54
Universities, Science & Communications	33	-	-	-	1,000	1,000	2,033
**Total ..... **	**12,732**	**2,938**	**6,127**	**124**	**1,494**	**1,967**	**25,382**

TABLE 12. Detail of Intramural Expenditures in the Natural Sciences, 1981-82

Ministry or Agency	Current expenditures		Capital expenditures	Total
	Personnel costs	Other costs		
	($'000)			
Agriculture & Food	734	213	-	947
Energy, Mines & Petroleum Resources	1,773	884	-	2,657
Environment	12,656	4,303	616	17,575
Forests	6,731	2,952	215	9,898
Health	60	5	-	65
Health Care Research Foundation	22	-	-	22
Lands, Parks & Housing	-	-	-	-
Provincial Secretary & Government Services	1,630	10	-	1,640
Science Council of B.C.	220	120	-	340
Transportation & Highways	151	-	-	151
Universities, Science & Communications	29	208	-	237
Total	**24,006**	**8,695**	**831**	**33,532**

CHART 3

GOVERNMENT OF BRITISH COLUMBIA
PERSONNEL ENGAGED IN INTRAMURAL ACTIVITIES IN THE NATURAL SCIENCES 1981-82



Government of British Columbia

TABLE 13. Personnel Engaged in Scientific Activities in the Natural Sciences, by Ministry or Agency, 1981-82

Ministry or Agency	Research and development				Related scientific activities			
	Scientific and professional	Technical	Other	Total	Scientific and professional	Technical	Other	Total
	(person-years)							
Agriculture & Food	-	-	-	-	7	9	12	28
Energy, Mines & Petroleum Resources	14	7	3	24	21	18	11	50
Environment	26	36	4	66	117	339	47	503
Forests	83	99	33	215	8	21	6	35
Health	-	-	-	-	1	1	1	3
Health Care Research Foundation	-	1	-	1	-	-	-	-
Lands, Parks & Housing ...	-	-	-	-	-	-	-	-
Provincial Secretary & Government Services	4	4	-	8	7	21	7	35
Science Council of B.C. ..	5	-	2	7	-	-	-	-
Transportation & Highways	1	1	-	2	1	1	-	2
Universities, Science & Communications	1	-	-	1	-	-	-	-
Total	**134**	**148**	**42**	**324**	**162**	**410**	**84**	**656**

TABLE 14. Application of Expenditures in the Natural Sciences, by Ministry or Agency, 1981-82

Ministry or Agency	Advancement of science	Communications	Food and related areas			Health	Industrial and economic development
			Agriculture	Fisheries	Other		
	($'000)						
Agriculture & Food	-	-	1,785	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment	50	132	755	2,570	57	1,100	45
Forests	-	-	-	-	-	-	-
Health	-	-	-	-	-	65	-
Health Care Research Foundation	-	-	-	-	-	3,033	-
Lands, Parks & Housing	-	-	-	8	-	-	-
Provincial Secretary & Government Services	420	-	-	-	-	-	-
Science Council of B.C.	127	1,108	151	1,103	-	-	546
Transportation & Highways ..	-	-	-	-	-	-	-
Universities, Science & Communications	155	35	-	550	-	-	1,060
**Total ..... **	**752**	**1,275**	**2,691**	**4,231**	**57**	**4,198**	**1,651**

Continued

TABLE 14. Application of Expenditures in the Natural Sciences, by Ministry or Agency, 1981-82 - Continued

Ministry or Agency	Natural resources				
	Energy and fuels	Forestry	Minerals	Water	Other
	($'000)				
Agriculture & Food	-	-	-	-	-
Energy, Mines & Petroleum Resources	2,534	-	2,291	-	20
Environment	664	1,468	350	3,676	5,460
Forests	-	10,912	-	-	25
Health	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-
Lands, Parks & Housing	-	-	-	-	4
Provincial Secretary & Government Services	-	-	-	-	-
Science Council of B.C.	683	1,441	681	-	-
Transportation & Highways ...	-	-	-	-	-
Universities, Science & Communications	257	-	-	-	180
**Total ..... **	**4,138**	**13,821**	**3,322**	**3,676**	**5,689**

Continued

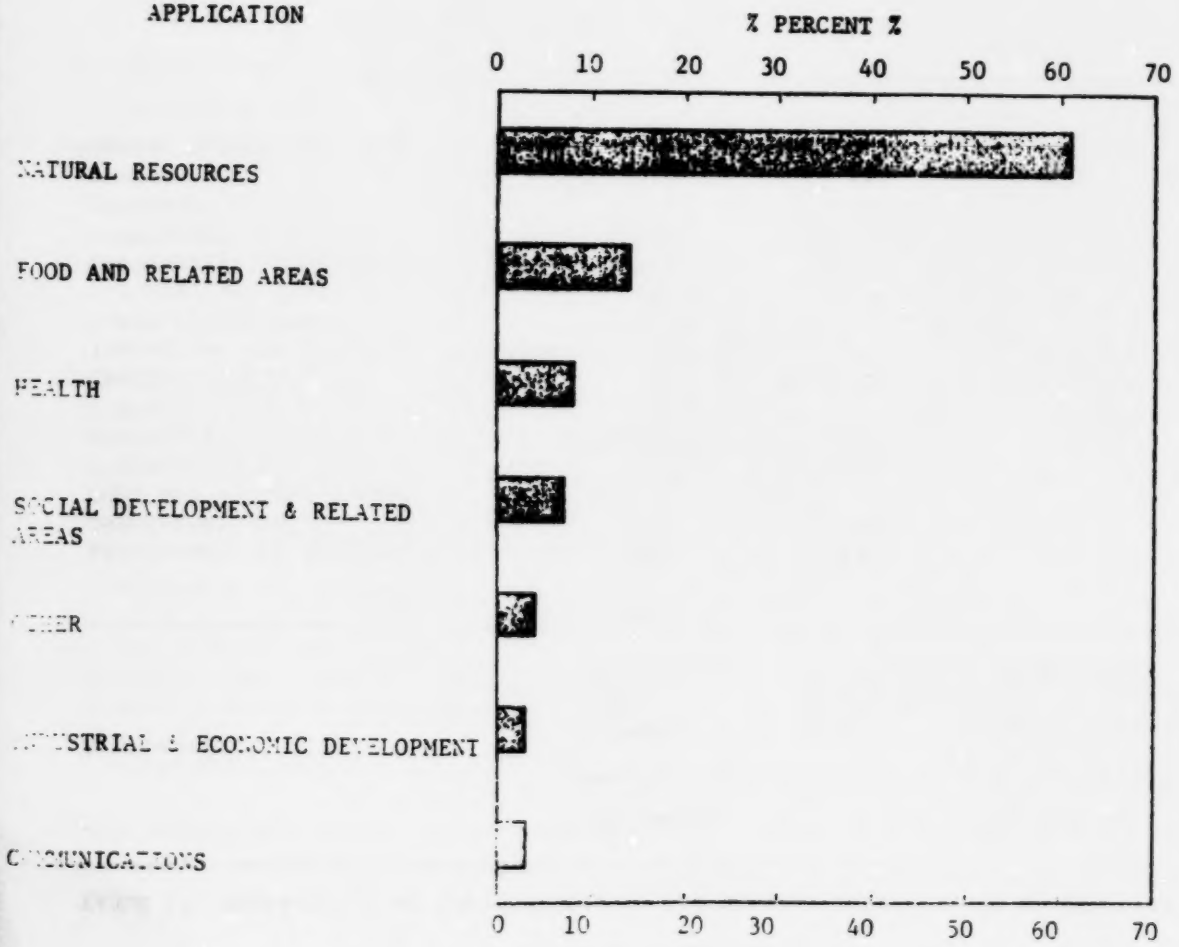
TABLE 14. Application of Expenditures in the Natural Sciences, by Ministry or Agency, 1981-82 - Concluded

Ministry or Agency	Social development and related areas			Transportation		Other	Grand Total
	Culture, sport and recreation	Education	Urban and regional studies	Road	Rail		
	($'000)						
Agriculture & Food	-	-	-	-	-	-	1,785
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	4,845
Environment	611	183	1,527	611	45	-	19,304
Forests	-	-	-	-	-	-	10,937
Health	-	-	-	-	-	-	65
Health Care Research Foundation	-	-	-	-	-	-	3,033
Lands, Parks & Housing	-	-	-	-	-	-	12
Provincial Secretary & Government Services	1,220	-	-	-	-	-	1,640
Science Council of B.C. ...	-	-	-	-	-	-	5,840
Transportation & Highways .	-	-	-	151	-	-	151
Universities, Science & Communications	-	-	-	-	-	420	2,657
Total	**1,831**	**183**	**1,527**	**762**	**45**	**420**	**50,269**

CHART 4

GOVERNMENT OF BRITISH COLUMBIA

APPLICATION OF EXPENDITURES ON ACTIVITIES IN THE NATURAL SCIENCES 1981-82



Government of British Columbia

TABLE 15. Application of Expenditures in the Natural Sciences, by Application and Activity, 1981-82

Application	Intramural		Extramural		Total
	Research and development	Related scientific activities	Research and development	Related scientific activities	
	($'000)				
Advancement of science	490	142	120	-	752
Communications	65	104	1,078	28	1,275
Food and related areas:					
Agriculture	79	1,561	973	78	2,691
Fisheries	1,348	1,063	1,732	88	4,231
Other	-	-	57	-	57
Health	27	1,160	3,011	-	4,198
Industrial and economic development	31	45	1,575	-	1,651
Natural resources:					
Energy and fuels	291	1,130	828	1,889	4,138
Forestry	8,917	2,247	2,340	317	13,821
Minerals	1,089	1,161	701	371	3,322
Water	72	3,389	-	215	3,676
Other	565	4,885	235	4	5,689
Social development and related areas:					
Culture, sport and recreation	-	1,690	-	141	1,831
Education	-	141	-	42	183
Urban and regional studies	-	1,174	-	353	1,527
Transportation:					
Road	54	567	-	141	762
Rail	-	45	-	-	45
Other	-	-	-	420	420
Total	**13,028**	**20,504**	**12,650**	**4,087**	**50,269**

Government of British Columbia

TABLE 16. Total Expenditures in the Natural Sciences, by Activity and Performer, 1982-83(e)

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Research & development:							
In-house	13,707	-	-	-	-	-	13,707
Contracts	365	326	235	-	-	1,144	2,070
Grants	462	1,402	4,064	124	1,627	797	8,476
Research fellowships	-	150	841	-	-	21	1,012
Sub-total	14,534	1,878	5,140	124	1,627	1,962	25,265
Related scientific activities:							
Education support	152	-	4	-	-	200	356
Technical surveys	15,280	1,411	-	-	-	250	16,941
Information services	2,693	-	7	-	-	150	2,850
Special services & studies	2,777	2,155	-	-	562	513	6,007
Museum services	1,010	-	-	-	-	10	1,020
Sub-total	21,912	3,566	11	-	562	1,123	27,174
Capital expenditures:							
Research & development	570	NA	NA	NA	NA	NA	570
Related scientific activities	566	NA	NA	NA	NA	NA	566
Sub-total	1,136	NA	NA	NA	NA	NA	1,136
Total	37,582	5,444	5,151	124	2,189	3,085	53,575

TABLE 17. Total Expenditures in the Natural Sciences, by Ministry or Agency and Performer, 1982-83(e)

Ministry or Agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Agriculture & Food	1,017	326	167	-	-	-	1,510
Energy, Mines & Petroleum Resources	3,032	2,115	-	-	-	1,105	6,252
Environment	18,862	1,461	8	-	-	78	20,409
Forests	12,261	-	235	-	-	1,076	13,572
Health	8	-	-	-	-	-	8
Health Care Research Foundation	22	-	2,830	124	-	57	3,033
Lands, Parks & Housing	-	-	4	-	-	8	12
Provincial Secretary & Government Services	1,640	-	-	-	-	-	1,640
Science Council of B.C	375	1,542	1,907	-	291	97	4,212
Transportation & Highways .	130	-	-	-	-	-	130
Universities, Science & Communications	235	-	-	-	1,898	664	2,797
Total	**37,582**	**5,444**	**5,151**	**124**	**2,189**	**3,085**	**53,575**

TABLE 18. Current Expenditures in the Natural Sciences, by Ministry or Agency and Activity, 1982-83(e)

Ministry or Agency	Research and development	Education support	Technical surveys	Information services	Special services and studies	Museum services	Total
	($'000)						
Agriculture & Food	486	-	-	962	62	-	1,510
Energy, Mines & Petroleum Resources	1,389	232	635	638	3,358	-	6,252
Environment	1,834	10	15,796	934	1,224	20	19,818
Forests	11,776	-	510	56	685	-	13,027
Health	-	-	-	-	8	-	8
Health Care Research Foundation	3,033	-	-	-	-	-	3,033
Lands, Parks & Housing	-	4	-	-	8	-	12
Provincial Secretary & Government Services	420	110	-	110	-	1,000	1,640
Science Council of B.C. ...	4,212	-	-	-	-	-	4,212
Transportation & Highways .	50	-	-	-	80	-	130
Universities, Science & Communications	2,065	-	-	150	582	-	2,797
Total	**25,265**	**356**	**16,941**	**2,850**	**6,007**	**1,020**	**52,439**

Government of British Columbia

TABLE 19. Current Expenditures on R & D in the Natural Sciences, by Ministry or Agency and Performer, 1982-83(e)

Ministry or Agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Agriculture & Food	-	326	160	-	-	-	486
Energy, Mines & Petroleum Resources	1,389	-	-	-	-	-	1,389
Environment	1,748	10	8	-	-	68	1,834
Forests	10,465	-	235	-	-	1,076	11,776
Health	-	-	-	-	-	-	-
Health Care Research Foundation	22	-	2,830	124	-	57	3,033
Lands, Parks & Housing	-	-	-	-	-	-	-
Provincial Secretary & Government Services	420	-	-	-	-	-	420
Science Council of B.C.	375	1,542	1,907	-	291	97	4,212
Transportation & Highways ..	50	-	-	-	-	-	50
Universities, Science & Communications	65	-	-	-	1,336	664	2,065
Total	**14,534**	**1,878**	**5,140**	**124**	**1,627**	**1,962**	**25,265**

TABLE 20. Ministerial Personnel Engaged in Scientific Activities in the Natural Sciences, by Ministry or Agency, 1982-83(e)

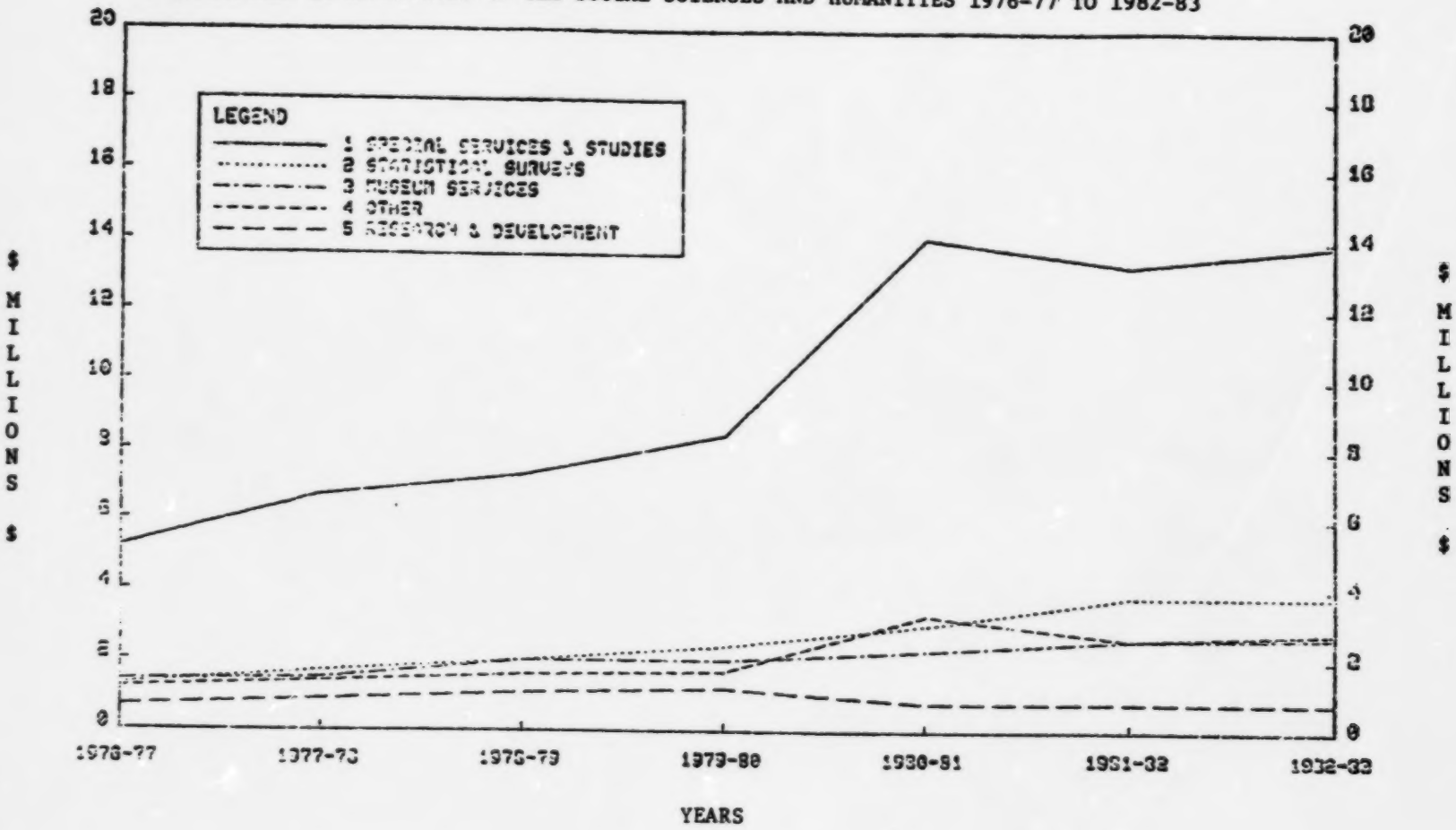
Ministry or Agency	Research and development				Related scientific activities			
	Scientific and professional	Technical	Other	Total	Scientific and professional	Technical	Other	Total
	(person-years)							
Agriculture & Food	-	-	-	-	7	9	12	28
Energy, Mines & Petroleum Resources	16	7	3	26	47	8	11	66
Environment	33	22	5	60	118	335	46	499
Forests	85	101	33	219	9	24	5	38
Health	-	-	-	-	-	-	-	-
Health Care Research Foundation	-	1	-	1	-	-	-	-
Lands, Parks & Housing	-	-	-	-	-	-	-	-
Provincial Secretary & Government Services	4	4	-	8	7	21	7	35
Science Council of B.C. ...	7	-	3	10	-	-	-	-
Transportation & Highways .	1	1	-	2	1	1	-	2
Universities, Science & Communications	1	-	-	1	-	-	-	-
Total	**147**	**136**	**44**	**327**	**189**	**398**	**81**	**668**

Social Sciences and Humanities

CHART 5

GOVERNMENT OF BRITISH COLUMBIA

EXPENDITURES ON ACTIVITIES IN THE SOCIAL SCIENCES AND HUMANITIES 1976-77 TO 1982-83



Government of British Columbia

TABLE 21. Total Expenditures in the Social Sciences and Humanities, by Activity, 1976-77 to 1982-83

Activity	1976-77	1977-78	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Research and development:							
In-house	689	741	972	1,094	713	730	732
Contracts	47	98	79	83	10	10	10
Grants	-	30	30	30	21	20	-
Sub-total	736	869	1,081	1,207	744	760	742
Related scientific activities:							
Education support	94	127	189	438	638	611	672
Statistical surveys	1,272	1,667	2,049	2,390	2,870	3,698	3,674
Information services	1,106	1,231	1,396	1,258	2,527	1,934	1,988
Special services and studies	5,121	6,730	7,235	8,174	13,466	12,941	13,456
Museum services	1,438	1,535	2,034	1,987	2,235	2,467	2,621
Sub-total	9,031	11,290	12,903	14,247	21,736	21,651	22,411
Capital expenditures:							
Research and development	-	11	18	15	20	20	20
Related scientific activities	137	54	144	282	866	691	655
Sub-total	137	65	162	297	886	711	675
Total	**9,904**	**12,224**	**14,146**	**15,751**	**23,366**	**23,122**	**23,828**

TABLE 22. Total Expenditures in the Social Sciences and Humanities, by Ministry, 1976-77 to 1982-83

Ministry	1976-77	1977-78	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Attorney General	740	671	910	1,015	1,280	1,330	1,369
Consumer & Corporate Affairs	231	214	356	469	443	616	562
Economic Development	1,867	3,172	3,625	NA	NA	NA	NA
Education	1,599	2,113	NA	1,727	1,767	1,907	1,897
Education, Science and Technology	NA	NA	1,999	NA	NA	NA	NA
Energy, Mines & Petroleum Resources	NA	NA	254	238	-	-	-
Energy, Transport and Communications	489	489	NA	NA	NA	NA	NA
Environment	158	169	221	372	10	65	90
Finance	20	30	40	115	1,299	2,052	2,277
Forests	121	20	12	22	91	233	142
Health	749	668	1,217	1,674	1,475	1,686	1,755
Highways	25	26	NA	NA	NA	NA	NA
Human Resources	67	NA	140	NA	NA	NA	NA
Industry & Small Business Development	NA	NA	NA	5,107	11,037	8,240	8,240
Labour	607	701	392	508	564	1,208	1,236
Lands, Parks & Housing	NA	NA	235	309	270	192	225
Mines & Petroleum Resources	NA	119	NA	NA	NA	NA	NA
Municipal Affairs	NA	NA	424	497	539	274	351
Municipal Affairs & Housing	195	412	NA	NA	NA	NA	NA
Provincial Secretary & Government Services	NA	NA	3,627	3,508	3,978	4,257	4,471
Provincial Secretary & Travel Industry	2,181	2,354	NA	NA	NA	NA	NA
Recreation & Conservation ..	855	866	NA	NA	NA	NA	NA
Tourism	NA	NA	NA	72	181	261	300
Tourism & Small Business Development	NA	NA	570	NA	NA	NA	NA
Transportation, Communications & Highways	NA	NA	124	NA	NA	NA	NA
Transportation & Highways ..	NA	NA	NA	118	432	801	913
Total	**9,904**	**12,224**	**14,146**	**15,751**	**23,366**	**23,122**	**23,828**

TABLE 23. Total Expenditures in the Social Sciences and Humanities, by Performer, 1976-77 to 1982-83

Performer	1976-77	1977-78	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Intramural	7,305	7,728	9,385	10,541	13,429	16,262	16,859
Industry	882	2,179	2,375	3,266	8,131	4,419	4,652
Universities	574	635	275	120	85	69	51
Hospitals and health organizations	(1)	45	62	65	45	49	54
B.C. Research Council	110	297	17	-	49	91	106
Other	1,033	1,340	2,032	1,759	1,627	2,232	2,106
**Total	9,904	12,224	14,146	15,751	23,366	23,122	23,828

(1) In 1976-77 Hospitals and health organizations were included in Other performers.

TABLE 24. Current Expenditures on R & D in the Social Sciences and Humanities, by Performer, 1976-77 to 1982-83

Performer	1976-77	1977-78	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Intramural	699	751	982	1,104	723	740	742
Industry	28	62	12	56	-	-	-
Universities	7	35	30	30	21	20	-
Hospitals and health organizations	-	-	-	-	-	-	-
B.C. Research Council	-	-	-	-	-	-	-
Other	2	21	57	17	-	-	-
**Total ..... **	**736**	**869**	**1,081**	**1,207**	**744**	**760**	**742**

Government of British Columbia

TABLE 25. Current Expenditures on R & D in the Social Sciences and Humanities, by Ministry 1976-77 to 1982-83

Ministry	1976-77	1977-78	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	($'000)						
Attorney General	90	149	233	235	153	162	173
Consumer & Corporate Affairs	30	8	-	-	-	-	-
Economic Development	10	98	50	NA	NA	NA	NA
Education	-	3	NA	-	-	-	-
Energy, Mines & Petroleum Resources	NA	NA	-	56	-	-	-
Environment	15	-	-	-	-	-	-
Forests	7	-	-	-	-	-	-
Health	60	140	291	456	121	132	97
Highways	5	24	NA	NA	NA	NA	NA
Human Resources	51	NA	97	NA	NA	NA	NA
Industry & Small Business Development	NA	NA	NA	50	20	-	-
Mines & Petroleum Resources	NA	46	NA	NA	NA	NA	NA
Municipal Affairs	NA	NA	-	-	-	16	22
Municipal Affairs & Housing	111	27	NA	NA	NA	NA	NA
Provincial Secretary & Government Services	NA	NA	410	410	450	450	450
Provincial Secretary & Travel Industry	357	374	NA	NA	NA	NA	NA
**Total ..... **	**736**	**869**	**1,081**	**1,207**	**744**	**760**	**742**

TABLE 26. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Activity and by Category, 1976-77 to 1982-83

Activity and Category	1976-77	1977-78	1978-79(r)	1979-80(r)	1980-81(r)	1981-82	1982-83(e)
	(person-years)						
Research & development:							
Scientific & professional	16	15	25	26	15	20	19
Technical	6	6	9	8	6	6	6
Other	4	7	9	12	4	3	2
Sub-total	28	28	43	46	25	29	27
Related scientific activities:							
Scientific & professional	163	162	170	168	192	203	193
Technical	76	61	62	85	80	79	77
Other	96	101	103	100	118	131	120
Sub-total	335	324	335	353	390	413	390
Total social science activities:							
Scientific & professional.....	179	177	195	194	207	223	212
Technical	84	67	71	93	86	85	83
Other	100	108	112	112	122	134	122
**Total	**363**	**352**	**378**	**399**	**415**	**442**	**417**

Government of British Columbia

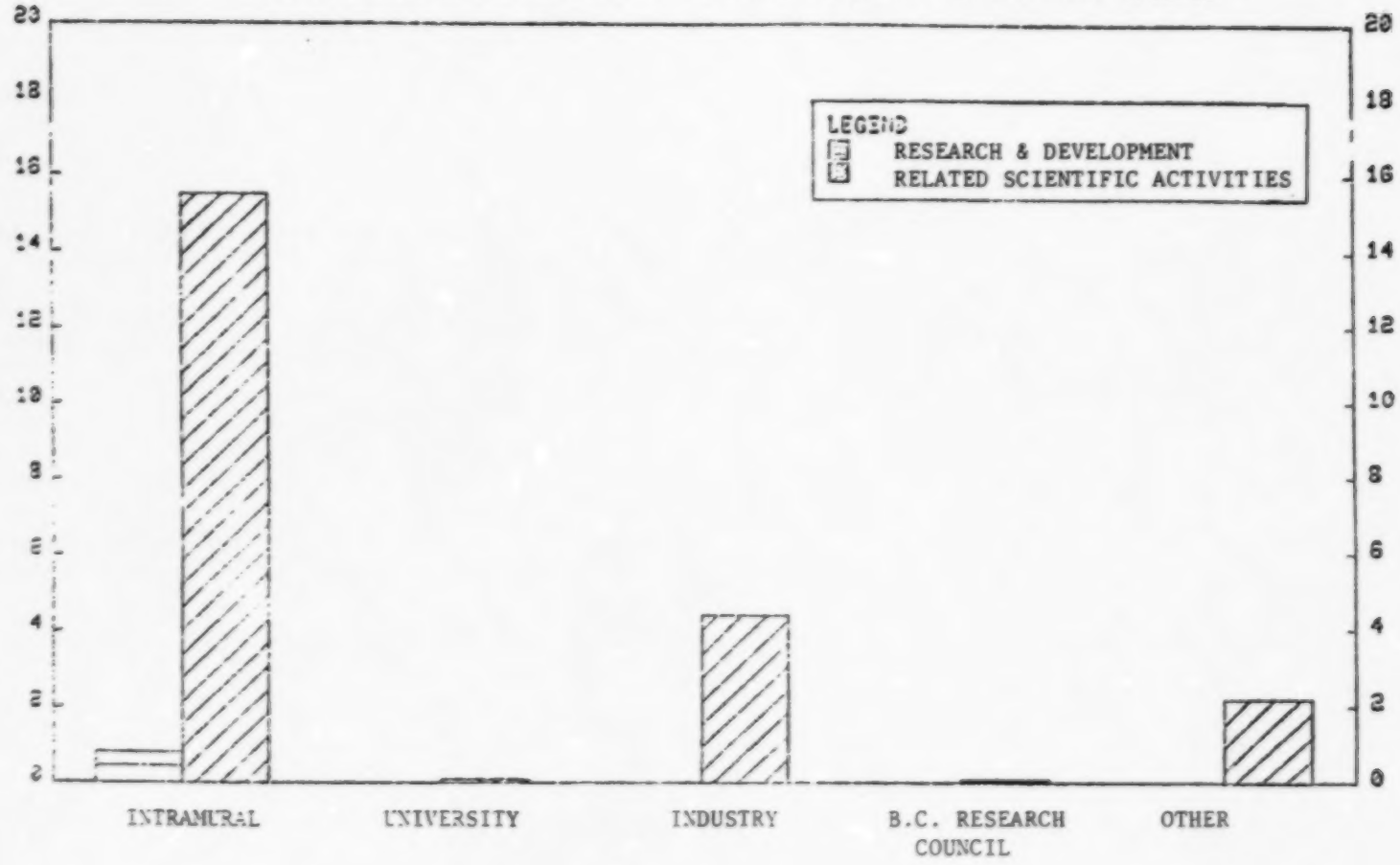
TABLE 27. Total Expenditures in the Social Sciences and Humanities, by Sources of Funds, 1981-82

Ministry	Ministerial budget	Transfers from other ministries	Transfers from federal government	Total
	($'000)			
Attorney General	1,219	-	111	1,330
Consumer & Corporate Affairs	616	-	-	616
Education	1,907	-	-	1,907
Environment	65	-	-	65
Finance	2,052	-	-	2,052
Forests	173	-	60	233
Health	1,511	175	-	1,686
Industry & Small Business Development	7,005	25	1,210	8,240
Labour	1,208	-	-	1,208
Lands, Parks & Housing	188	4	-	192
Municipal Affairs	274	-	-	274
Provincial Secretary & Government Services	3,904	253	100	4,257
Tourism	261	-	-	261
Transportation & Highways	776	-	25	801
Total	**21,159**	**457**	**1,506**	**23,122**

CHART 6

GOVERNMENT OF BRITISH COLUMBIA

PERFORMERS OF ACTIVITIES IN THE SOCIAL SCIENCES AND HUMANITIES 1981-82



Government of British Columbia

TABLE 28. Total Expenditures in the Social Sciences and Humanities, by Activity and Performer, 1981-82

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Research and development:							
In-house	730	-	-	-	-	-	730
Contracts	10	-	-	-	-	-	10
Grants	-	-	20	-	-	-	20
Sub-total	740	-	20	-	-	-	760
Related scientific activities:							
Education support	271	-	-	-	-	340	611
Statistical surveys	2,178	382	-	-	-	1,138	3,698
Information services	1,201	686	-	-	16	31	1,934
Special services and studies	8,727	3,351	49	49	75	690	12,941
Museum services	2,434	-	-	-	-	33	2,467
Sub-total	14,811	4,419	49	49	91	2,232	21,651
Capital expenditures:							
Research and development	20	NA	NA	NA	NA	NA	20
Related scientific activities	691	NA	NA	NA	NA	NA	691
Sub-total	711	NA	NA	NA	NA	NA	711
Total	16,262	4,419	69	49	91	2,232	23,122

TABLE 29. Total Expenditures in the Social Sciences and Humanities, by Ministry and Performer, 1981-82

Ministry	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Attorney General	1,255	-	-	-	-	75	1,330
Consumer & Corporate Affairs	394	76	-	-	-	146	616
Education	362	34	12	-	16	1,483	1,907
Environment	30	-	-	-	-	35	65
Finance	2,052	-	-	-	-	-	2,052
Forests	233	-	-	-	-	-	233
Health	1,617	-	20	49	-	-	1,686
Industry & Small Business Development	4,270	3,445	5	-	40	480	8,240
Labour	1,208	-	-	-	-	-	1,208
Lands, Parks & Housing	79	113	-	-	-	-	192
Municipal Affairs	223	51	-	-	-	-	274
Provincial Secretary & Government Services	4,225	-	32	-	-	-	4,257
Tourism	200	13	-	-	35	13	261
Transportation & Highways	114	687	-	-	-	-	801
Total	**16,262**	**4,419**	**69**	**49**	**91**	**2,232**	**23,122**

TABLE 30. Current Expenditures in the Social Sciences and Humanities, by Ministry and Activity, 1981-82

Ministry	Research and development	Education support	Statistical surveys	Information services	Special services and studies	Museum services	Total
	($'000)						
Attorney General	162	-	69	67	982	-	1,280
Consumer & Corporate Affairs	-	16	30	65	505	-	616
Education	-	470	1,170	70	164	33	1,907
Environment	-	-	65	-	-	-	65
Finance	-	-	-	-	2,052	-	2,052
Forests	-	-	124	-	109	-	233
Health	132	-	448	39	1,067	-	1,686
Industry & Small Business Development .	-	15	1,095	1,065	5,525	-	7,700
Labour	-	-	632	200	376	-	1,208
Lands, Parks & Housing .	-	-	-	93	99	-	192
Municipal Affairs	16	-	11	11	236	-	274
Provincial Secretary & Government Services ..	450	110	-	222	922	2,434	4,138
Tourism	-	-	54	10	195	-	259
Transportation & Highways	-	-	-	92	709	-	801
**Total ..... **	**760**	**611**	**3,698**	**1,934**	**12,941**	**2,467**	**22,411**

TABLE 31. Current Expenditures on R & D in the Social Sciences and Humanities, by Ministry and Performer, 1981-82

Ministry	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Attorney General	162	-	-	-	-	-	162
Consumer & Corporate Affairs	-	-	-	-	-	-	-
Education	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-
Finance	-	-	-	-	-	-	-
Forests	-	-	-	-	-	-	-
Health	112	-	20	-	-	-	132
Industry & Small Business Development.....	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-
Lands, Parks & Housing.....	-	-	-	-	-	-	-
Municipal Affairs	16	-	-	-	-	-	16
Provincial Secretary & Government Services.....	450	-	-	-	-	-	450
Tourism	-	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-	-
Total	**740**	**-**	**20**	**-**	**-**	**-**	**760**

TABLE 32. Detail of Intramural Expenditures in the Social Sciences and Humanities, 1981-82

Ministry	Current expenditures		Capital expenditures	Total
	Personnel costs	Other costs		
	($'000)			
Attorney General	959	246	50	1,255
Consumer & Corporate Affairs	394	-	-	394
Education	292	70	-	362
Environment	30	-	-	30
Finance	1,226	826	-	2,052
Forests	227	6	-	233
Health	1,358	259	-	1,617
Industry & Small Business Development ...	2,465	1,265	540	4,270
Labour	354	854	-	1,208
Lands, Parks & Housing ...	62	17	-	79
Municipal Affairs	163	60	-	223
Provincial Secretary & Government Services	3,439	667	119	4,225
Tourism	100	98	2	200
Transportation & Highways	87	27	-	114
**Total ..... **	**11,156**	**4,395**	**711**	**16,262**

CHART 7

GOVERNMENT OF BRITISH COLUMBIA

PERSONNEL ENGAGED IN INTRAMURAL ACTIVITIES IN THE SOCIAL SCIENCES AND HUMANITIES 1981-82

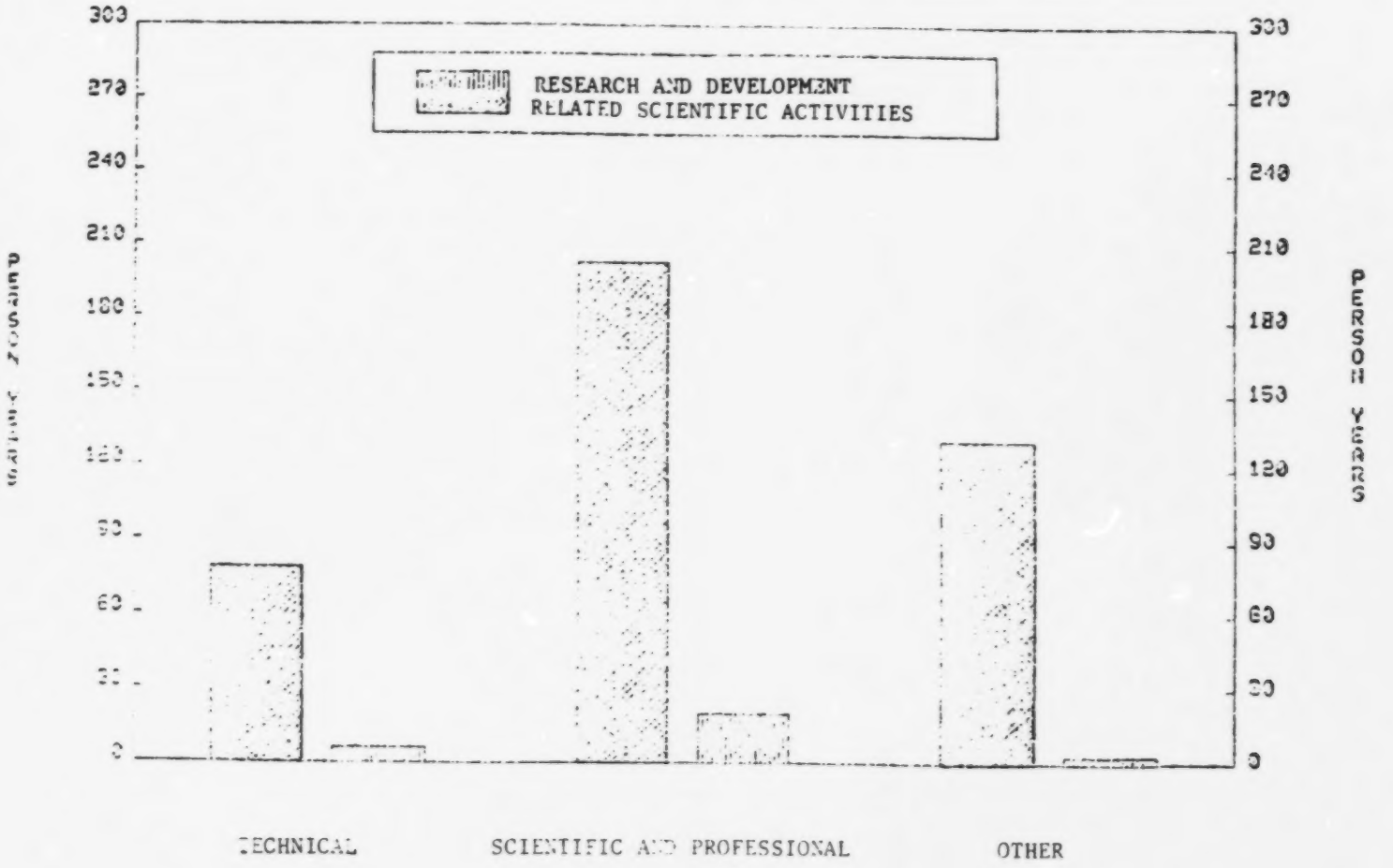


TABLE 33. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Ministry, 1981-82

Ministry	Research and development				Related scientific activities			
	Scientific and professional	Technical	Other	Total	Scientific and professional	Technical	Other	Total
	(person-years)							
Attorney General	8	-	2	10	21	1	18	40
Consumer & Corporate Affairs	-	-	-	-	10	-	5	15
Education	-	-	-	-	8	-	-	8
Environment	-	-	-	-	1	-	-	1
Finance	-	-	-	-	22	5	5	32
Forests	-	-	-	-	1	4	-	5
Health	5	-	1	6	21	2	31	54
Industry & Small Business Development .	-	-	-	-	63	5	30	98
Labour	-	-	-	-	6	2	7	15
Lands, Parks & Housing .	-	-	-	-	1	-	1	2
Municipal Affairs	1	-	-	1	4	-	2	6
Provincial Secretary & Government Services ..	6	6	-	12	39	60	29	128
Tourism	-	-	-	-	3	-	1	4
Transportation & Highways	-	-	-	-	3	-	2	5
**Total ..... **	**20**	**6**	**3**	**29**	**203**	**79**	**131**	**413**

TABLE 34. Application of Expenditures in the Social Sciences and Humanities, by Ministry, 1981-82

Ministry	Advancement of science	Food and related areas		Health	Industrial and economic development
		Agriculture	Fisheries		
	($'000)				
Attorney General	-	-	-	-	-
Consumer & Corporate Affairs	-	-	-	-	-
Education	-	-	-	-	-
Environment	-	-	-	-	-
Finance	-	-	-	-	-
Forests	-	-	-	-	-
Health	-	-	-	1,686	-
Industry & Small Business Development ...	-	40	20	115	2,300
Labour	-	-	-	-	-
Lands, Parks & Housing ...	-	-	-	-	-
Municipal Affairs	-	-	-	-	-
Provincial Secretary & Government Services	450	-	-	-	-
Tourism	-	-	-	-	-
Transportation & Highways	-	-	-	-	-
**Total	**450**	**40**	**20**	**1,801**	**2,300**

Continued

Government of British Columbia

TABLE 34. Application of Expenditures in the Social Sciences and Humanities, by Ministry, 1981-82 - Continued

Ministry	Natural resources				Transportation		
	Energy and fuels	Forestry	Minerals	Water	Road	Rail	Other
	($'000)						
Attorney General	-	-	-	-	-	-	83
Consumer & Corporate Affairs	-	-	-	-	-	-	-
Education	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-
Finance	-	-	-	-	-	-	-
Forests	-	233	-	-	-	-	-
Health	-	-	-	-	-	-	-
Industry & Small Business Development ..	2,825	115	600	10	550	550	-
Labour	-	-	-	-	-	-	-
Lands, Parks & Housing ..	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services ...	-	-	-	-	-	-	-
Tourism	-	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	289	512
**Total ..... **	**2,825**	**348**	**600**	**10**	**550**	**839**	**595**

Continued

TABLE 34. Application of Expenditures in the Social Sciences and Humanities, by Ministry, 1981-82 - Concluded

Ministry	Social development and related areas					Grand Total
	Culture sport and recreation	Education	Human resources	Urban and regional studies	Other	
	($'000)					
Attorney General	-	65	-	79	1,103	1,330
Consumer & Corporate Affairs	-	-	-	-	616	616
Education	-	1,907	-	-	-	1,907
Environment	65	-	-	-	-	65
Finance	-	-	-	-	2,052	2,052
Forests	-	-	-	-	-	233
Health	-	-	-	-	-	1,686
Industry & Small Business Development	130	80	405	500	-	8,240
Labour	-	-	1,208	-	-	1,208
Lands, Parks & Housing	-	-	-	192	-	192
Municipal Affairs	-	-	-	274	-	274
Provincial Secretary & Government Services	2,289	-	-	-	1,518	4,257
Tourism	261	-	-	-	-	261
Transportation & Highways	-	-	-	-	-	801
**Total ..... **	**2,745**	**2,052**	**1,613**	**1,045**	**5,289**	**23,122**

CHART 8

GOVERNMENT OF BRITISH COLUMBIA
APPLICATION OF EXPENDITURES ON ACTIVITIES IN THE SOCIAL SCIENCES AND HUMANITIES 1981-82

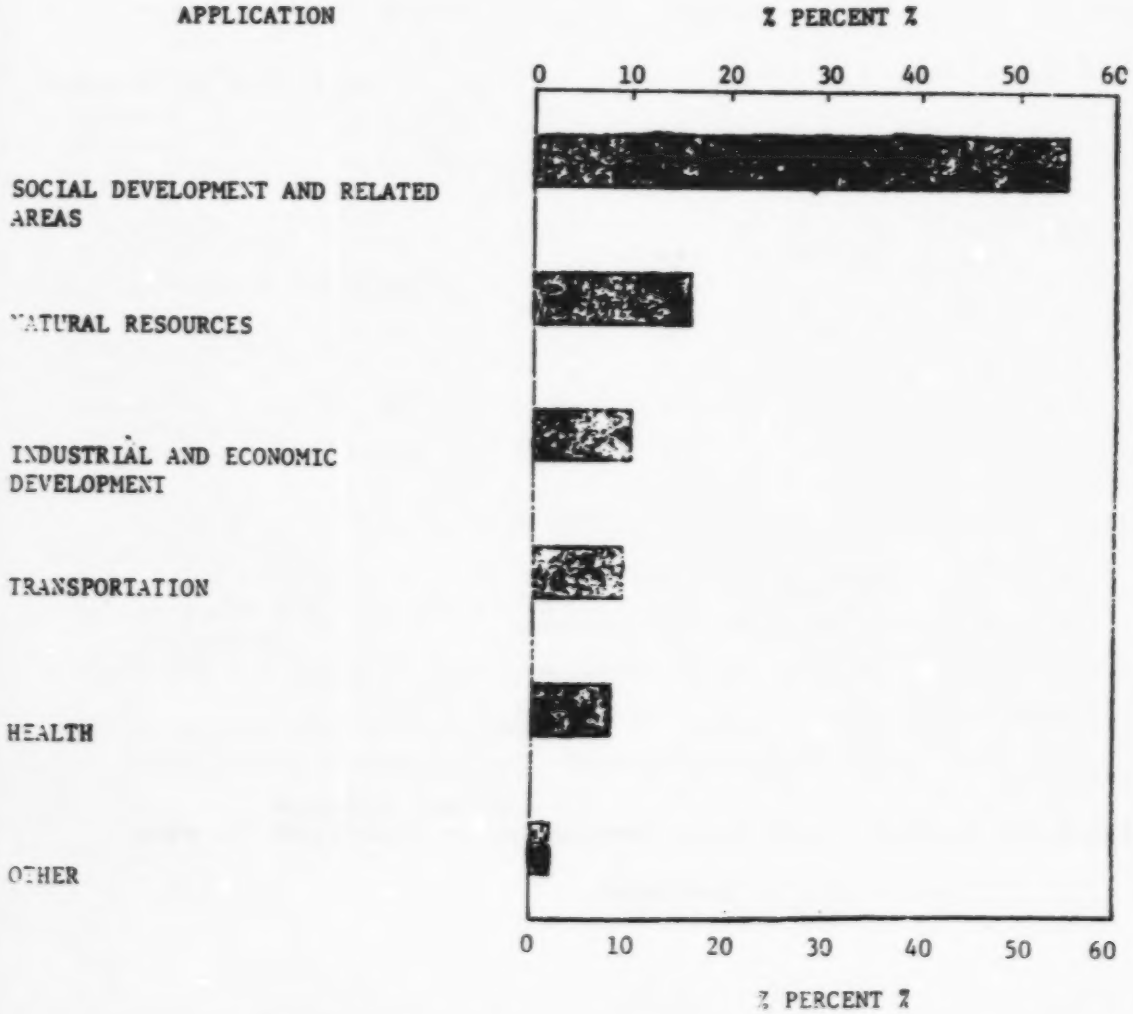


TABLE 35. Application of Expenditures in the Social Sciences and Humanities, by Application and Activity, 1981-82

Application	Intramural		Extramural		Total
	Research and development	Related scientific activities	Research and development	Related scientific activities	
	($'000)				
Advancement of science ..	450	-	-	-	450
Communications	-	-	-	-	-
Food and related areas:					
Agriculture	-	10	-	30	40
Fisheries	-	5	-	15	20
Health	112	1,605	20	64	1,801
Industrial and economic development	-	1,300	-	1,000	2,300
Natural resources:					
Energy and fuels	-	1,000	-	1,825	2,825
Forestry	-	283	-	65	348
Minerals	-	550	-	50	600
Water	-	-	-	10	10
Transportation:					
Road	-	200	-	350	550
Rail	-	250	-	589	839
Other	3	194	-	398	595
Social development and related areas:					
Culture, sport and recreation	-	2,537	-	208	2,745
Education	10	447	-	1,595	2,052
Human resources	-	1,538	-	75	1,613
Urban and regional studies	25	676	-	344	1,045
Other	160	4,907	-	222	5,289
**Total	**760**	**15,502**	**20**	**6,840**	**23,122**

Government of British Columbia

TABLE 36. Total Expenditures in the Social Sciences and Humanities, by Activity and Performer, 1982-83(e)

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Research and development:							
In-house	732	-	-	-	-	-	732
Contracts	10	-	-	-	-	-	10
Grants	-	-	-	-	-	-	-
Sub-total	742	-	-	-	-	-	742
Related scientific activities:							
Education support	322	-	-	-	-	350	672
Statistical surveys	2,164	387	-	-	-	1,123	3,674
Information services	1,229	723	-	-	16	20	1,988
Special services and studies	9,139	3,542	51	54	90	580	13,456
Museum services	2,588	-	-	-	-	33	2,621
Sub-total	15,442	4,652	51	54	106	2,106	22,411
Capital expenditures:							
Research and development	20	NA	NA	NA	NA	NA	20
Related scientific activities	655	NA	NA	NA	NA	NA	655
Sub-total	675	NA	NA	NA	NA	NA	675
Total	**16,859**	**4,652**	**51**	**54**	**106**	**2,106**	**23,828**

TABLE 37. Total Expenditures in the Social Sciences and Humanities, by Ministry and Performer, 1982-83(e)

Ministry	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Attorney General	1,369	-	-	-	-	-	1,369
Consumer & Corporate Affairs	432	30	-	-	-	100	562
Education	379	37	12	-	16	1,453	1,897
Environment	30	-	-	-	-	60	90
Finance	2,277	-	-	-	-	-	2,277
Forests	142	-	-	-	-	-	142
Health	1,701	-	-	54	-	-	1,755
Industry & Small Business Development.....	4,270	3,445	5	-	40	480	8,240
Labour	1,230	-	-	-	-	-	1,236
Lands, Parks & Housing.....	65	160	-	-	-	-	225
Municipal Affairs	301	50	-	-	-	-	351
Provincial Secretary & Government Services.....	4,437	-	34	-	-	-	4,471
Tourism	220	17	-	-	50	13	300
Transportation & Highways	-	913	-	-	-	-	913
**Total	**16,859**	**4,652**	**51**	**54**	**106**	**2,106**	**23,828**

Government of British Columbia

TABLE 38. Current Expenditures in the Social Sciences and Humanities, by Ministry and Activity, 1982-83(e)

Ministry	Research and development	Education support	Statistical surveys	Information services	Special services and studies	Museum services	Total
	($'000)						
Attorney General	173	44	20	79	1,003	-	1,319
Consumer & Corporate Affairs	-	17	30	55	460	-	562
Education	-	486	1,140	74	164	33	1,897
Environment	-	-	90	-	-	-	90
Finance	-	-	-	-	2,277	-	2,277
Forests	-	-	82	-	60	-	142
Health	97	-	487	40	1,131	-	1,755
Industry & Small Business Development .	-	15	1,095	1,065	5,525	-	7,700
Labour	-	-	645	205	386	-	1,236
Lands, Parks & Housing .	-	-	-	115	110	-	225
Municipal Affairs	22	-	15	15	299	-	351
Provincial Secretary & Government Services ..	450	110	-	222	1,016	2,588	4,386
Tourism	-	-	70	10	220	-	300
Transportation & Highways	-	-	-	108	805	-	913
**Total	**742**	**672**	**3,674**	**1,988**	**13,456**	**2,621**	**23,153**

TABLE 39. Current Expenditures on R & D in the Social Sciences and Humanities, by Ministry and Performer, 1982-83(e)

Ministry	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($'000)						
Attorney General	173	-	-	-	-	-	173
Consumer & Corporate Affairs	-	-	-	-	-	-	-
Education	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-
Finance	-	-	-	-	-	-	-
Forests	-	-	-	-	-	-	-
Health	97	-	-	-	-	-	97
Industry & Small Business Development	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-
Lands, Parks & Housing	-	-	-	-	-	-	-
Municipal Affairs	22	-	-	-	-	-	22
Provincial Secretary & Government Services	450	-	-	-	-	-	450
Tourism	-	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-	-
Total	**742**	-	-	-	-	-	**742**

TABLE 40. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Ministry, 1982-83(e)

Ministry	Research and development				Related scientific activities			
	Scientific and professional	Technical	Other	Total	Scientific and professional	Technical	Other	Total
	(person-years)							
Attorney General	8	-	1	9	13	1	5	19
Consumer & Corporate Affairs	-	-	-	-	11	-	5	16
Education	-	-	-	-	8	-	-	8
Environment	-	-	-	-	1	-	-	1
Finance	-	-	-	-	23	6	5	34
Forests	-	-	-	-	1	1	2	4
Health	4	-	1	5	21	2	32	55
Industry & Small Business Development	-	-	-	-	63	5	30	98
Labour	-	-	-	-	6	2	8	16
Lands, Parks & Housing	-	-	-	-	1	-	1	2
Municipal Affairs	1	-	-	1	4	-	2	6
Provincial Secretary & Government Services	6	6	-	12	38	60	29	127
Tourism	-	-	-	-	3	-	1	4
Transportation & Highways	-	-	-	-	-	-	-	-
**Total ..... **	**19**	**6**	**2**	**27**	**193**	**74**	**120**	**390**

APPENDIX

B.C. Ministries Included in the Provincial Government Science Survey

1976-77	1977-78	1978-79
Agriculture	Agriculture	Agriculture
Attorney General	Attorney General	Attorney General
Consumer & Corporate Affairs	Consumer & Corporate Affairs	Consumer & Corporate Affairs
Education	Education	Education, Science & Technology
Highways & Public Works	Highways	Transportation, Communications & Highways
Energy, Transport & Communications	Energy, Transport & Communications	Energy, Mines & Petroleum Resources
Mines & Petroleum Resources	Mines & Petroleum Resources	
Finance	Finance	Finance
Forests	Forests	Forests
Health	Health	Health
		Health Care Research Foundation
Human Resources	Human Resources	Human Resources
Labour	Labour	Labour

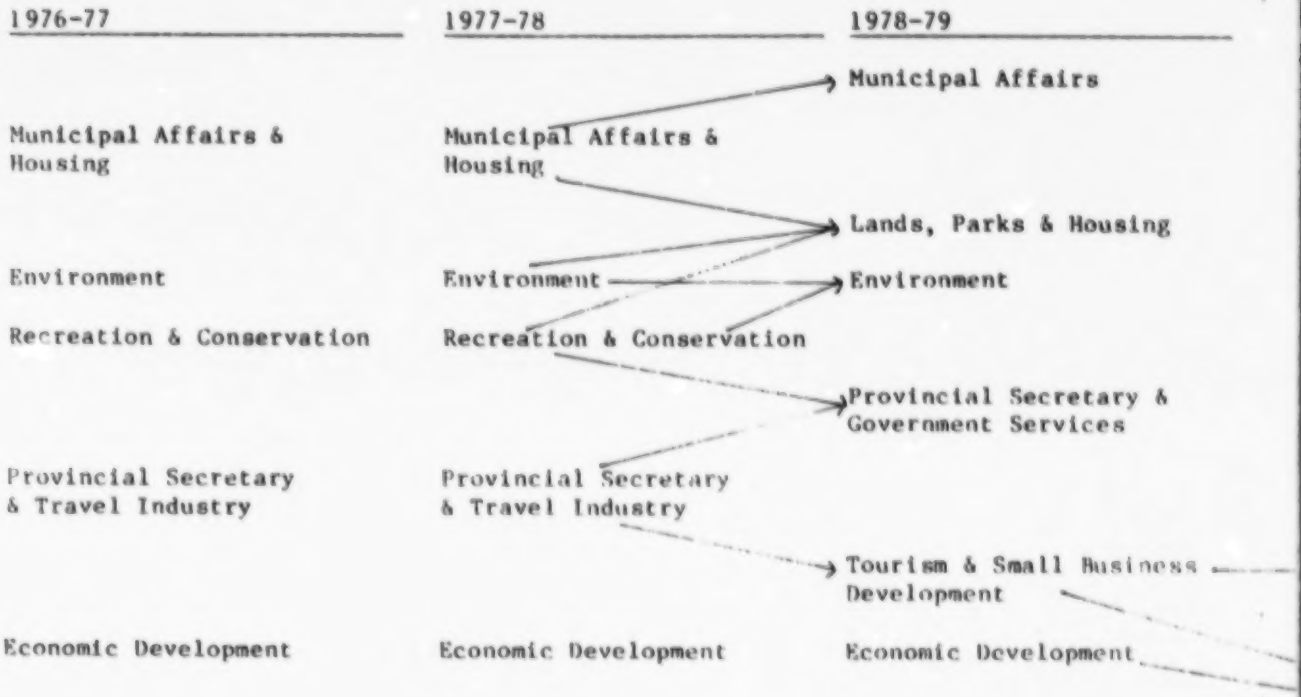
continued.....

B.C. Ministries Included in the Provincial Government Science Survey

1979-80	1980-81	1981-82
Agriculture	Agriculture	Agriculture & Food
Attorney General	Attorney General	Attorney General
Consumer & Corporate Affairs	Consumer & Corporate Affairs	Consumer & Corporate Affairs
Education	Education	Education
Universities, Science & Communications	Universities, Science & Communications	Universities, Science & Communications
	Science Council of B.C.	Science Council of B.C.
Transportation & Highways	Transportation & Highways	Transportation & Highways
Energy, Mines & Petroleum Resources	Energy, Mines & Petroleum Resources	Energy, Mines & Petroleum Resources
Finance	Finance	Finance
Forests	Forests	Forests
Health	Health	Health
Health Care Research Foundation	Health Care Research Foundation	Health Care Research Foundation
Human Resources	Human Resources	Human Resources
Labour	Labour	Labour

continued.....

B.C. Ministries Included in the Provincial Government Science Survey



B.C. Ministries Included in the Provincial Government Science Survey

1979-80	1980-81	1981-82
Municipal Affairs	Municipal Affairs	Municipal Affairs
Lands, Parks & Housing	Lands, Parks & Housing	Lands, Parks & Housing
Environment	Environment	Environment
Provincial Secretary & Government Services	Provincial Secretary & Government Services	Provincial Secretary & Government Services
Tourism	Tourism	Tourism
Industry & Small Business Development	Industry & Small Business Development	Industry & Small Business Development

DEFINITIONS

This report covers those scientific and technological activities which involve the generation, dissemination and application of new scientific and technological knowledge. The central activity is research and experimental development (R & D). In addition, there are a number of related scientific activities (RSA) which are considered in less detail.

R & D is creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications.

It requires the acquisition of knowledge and not just information. New knowledge involves the integration of newly acquired information into existing hypotheses, the formulation and testing of new hypotheses or the re-evaluation of existing observations.

The major related scientific activities are technical surveys, statistical surveys, information services, special services and studies, and museum services. Statistical surveys, information services and museum services are largely self-explanatory.

Technical surveys are activities directed towards the exploration and systematic description of the earth and its natural resources. The activities include the gathering, processing, collating and analyzing of data on natural phenomena except when part of a research project or a museum service. The preparation of maps and survey reports, their printing and cataloguing, are also included.

Special services and studies in the natural sciences are activities directed towards the establishment of national and provincial standards for materials, devices, products and processes; the calibration of secondary standards; non-routine quality testing; feasibility studies and demonstration projects. In the social sciences, special services and studies are systematic investigations carried out in order to provide information needed for planning or policy formulation, including feasibility studies, and demonstration projects.

Five performing sectors are identified besides the B.C. Research Council. Intramural refers to the provincial ministry or agency performing a scientific activity. Industry is largely private corporations but also includes crown corporations with a commercial function (e.g., power utilities) and industrial research institutes not controlled by another institution. Universities cover post secondary educational institutions and affiliated teaching and research facilities. Hospitals and health organizations are health organizations such as the Heart Foundation and hospitals which do not belong to the universities sector. Other includes non-resident performers of scientific activities funded by the provincial government, as well as recipients not covered elsewhere such as the Federal Government, other provincial ministries and individuals.

Expenditures are either current or capital. Current expenditures include those costs for personnel, transportation and communications, information, professional and special services, rentals, purchased repair and upkeep, utilities, materials and supplies. Capital expenditures are those on the construction and acquisition of land, buildings, machinery and equipment. Total expenditures include current plus capital.

THE RESPONDENTS

Agriculture and Food - Co-ordinator: Hugh Bryce (387-5121)

The main identifiable scientific activities are the Demonstration of Agricultural Technology and Economics (D.A.T.E.) and the Agricultural and Rural Development Subsidiary Agreement programs. Approximately 5% of the Ministry's operating budget and person years are attributed to information services.

Attorney General - Co-ordinator: Linda Light (668-2604)

Units such as the Law Reform Commission, Counter Attack, the B.C. Police Commission, the Corrections Branch and the Research Unit have reported science expenditures. Seventy-four % of the expenditures are spent on special services and studies.

Consumer and Corporate Affairs - Co-ordinator: David Oliver (387-1721)

Scientific expenditures were incurred by the Policy, Legislation and Program Planning Division, the Consumer Affairs Branch and Legal Services Branch.

Education - Co-ordinator: Mr. R.C. McCandless (387-3543)

About 80% of the ministry's science expenditures are extramural. Activities performed are education support and statistical surveys. One of the major performers of these activities is the Education Research Institute of B.C. (ERIBC).

Energy, Mines and Petroleum Resources - Co-ordinator: Verna Rae (387-1368)

Three different divisions are included in this ministry's science expenditures: Petroleum Resources, Mineral Resources and Energy Resources. The Ministry's science expenditures are split fairly even between R & D and RSA. They also support technical surveys and special services and studies in the industry sector.

Environment - Co-ordinator: Dr. Bandy (387-1818)

Dr. Bandy collected statistics from: Air Management, Aquatic Studies, Environmental Laboratory, Fish & Wildlife, Marine Resources, Surveys and Mapping, Terrestrial Studies and Planning Branch. This Ministry is the largest performer of science expenditures in the B.C. government. Technical surveys is the predominant activity.

Finance - Co-ordinator: Brenda Eaton (387-5148)

Economic forecasting and economic analyses required for policy development are the activities included in the report of this Ministry.

Forests - Co-ordinator: Winston Wai (387-1215)

Seven different branches report scientific activities in this Ministry: Engineering, Inventory, Protection, Range Management, Research, Silviculture and Valuation. Forests is the largest performer of R & D in the B.C. government.

Health - Co-ordinator: Bill Lawrence (386-3166)

Scientific activities have been identified in eight areas: Planning, Policy and Legislation, Alcohol and Drug Programs, VD Control, Vital Statistics, Mental Health Statistics, Care Services, Hospital Programs and the Library. The largest performers are Vital Statistics and Alcohol & Drug Programs.

Health Care Research Foundation - Co-ordinator: Len Hole (386-3166)

The Foundation makes awards available for the support of medical and health care research related to provincial problems.

Human Resources

No scientific activities are reported by the Ministry of Human Resources.

Industry and Small Business Development - Co-ordinator: Roy Whitaker (387-1502)

The Central Statistics Bureau supports all scientific activities of this Ministry. Work performed involves development studies on industries and some economic forecasting and policy analysis. Forty-two % of this Ministry's activities are contracted out to the industry sector.

Labour - Co-ordinator: Bob Pfister (387-5071)

The Program Services Branch performs the scientific activities of this Ministry.

Lands, Parks and Housing - Co-ordinator: Mr. Okros (387-3086)

The Housing Policy Branch and the Lands Branch reported science activities this year. A major revision in 1980-81 data was made. During that survey year, $2.5 million had been reported as social sciences by the Parks and Outdoor Recreation Branch. This year the Branch revised that expenditure to equal 0.

Municipal Affairs - Co-ordinator: Brian Wallisser (387-5925)

The Policy and Research Branch carries out and funds studies on such topics as the fiscal impact of residential growth, implications of large scale resource developments and community development.

Provincial Secretary

Four performers of scientific activities are included. The largest is the Provincial Museum (R. Edwards, 387-3701), followed by the Provincial Archives (D. Mason, 387-5885), the Heritage Conservation Branch (Art Charlton, 387-5038) and the Recreation and Sport Branch (Colin Campbell, 387-1931). Respectively, they spent $3.4, $1.5, $0.8 and $0.1 million on scientific activities in 1981-82. Expenditures of the Heritage Conservation Branch had to be estimated this year as no return was received.

Science Council of B.C. - Co-ordinator: Catherine Graham (273-0788)

The Council makes awards for research projects, mainly to researchers in the universities and industry, although the B.C. Research Council and other institutions also receive support. In addition, the Science Council has the Graduate Research Engineering and Technology (GREAT) Awards and the Industrial Post-doctoral Fellowship (IPDF) programs. The Research Secretariat of B.C. provides administrative services to the Science Council and coordinates the procedures for the granting programs of the Science Council and the Health Care Research Foundation.

Tourism - Co-ordinator: Mick Collins (387-6780)

The Policy, Development and Planning Branch reports a number of activities, including model development and maintenance, statistical surveys, performance indicators and the development of tourism policies.

Transportation and Highways - Co-ordinator: Mr. G. Clark (387-5996)
Mr. M.G. Elston (387-6742)

The Transport Policy Analysis Branch co-ordinates and disseminates information on transport policy. The Geotechnical and Materials Engineers Branch perform mostly special services and studies.

Universities, Science and Communications - Co-ordinator: Barry Stevenson (387-1239)

The Ministry provides funds to the Science Council of B.C. as well as grants to the Discovery Foundation and the B.C. Research Council. Through the Science and Technology Division it also develops plans and programs recommendations for science policy and develops an information base on scientific activities in the province.

Indicators of Provincial Scientific Activities

Indicators of Provincial Scientific Activities

1. Population and Income

Province	Population January/82(1)		Personal Income per capita 1980(2)		Provincial Gross Domestic Product per capita 1980(3)	
	(000)	Rank	($)	Rank	($)	Rank
Newfoundland	588.3	9	6,343	10	6,323	9
Prince Edward Island	124.9	10	7,048	9	6,299	10
Nova Scotia	859.4	7	7,845	7	7,488	7
New Brunswick	712.5	8	7,085	8	7,333	8
Québec	6,358.2	2	9,370	4	10,662	6
Ontario	8,664.6	1	10,614	3	12,896	4
Manitoba	1,034.4	5	8,876	6	10,736	5
Saskatchewan	988.4	6	9,028	5	13,194	3
Alberta	2,212.2	4	11,067	1	18,160	1
British Columbia	2,737.7	3	11,027	2	13,335	2
Canada(4)	24,347.4		9,913		12,217	

(1) Canadian Statistical Review, Statistics Canada Publication No. 11-003E, May 1982.
(2) National Income and Expenditure Accounts 1966-1980, Statistics Canada Catalogue No. 13-201.
(3) Provincial Economic Accounts, Experimental Data, 1965-1980, Statistics Canada Catalogue No. 13-213.
(4) Includes the Yukon and Northwest Territories.

2. Universities

Province	Graduate students per ten thousand population (15 years and over) 1980-81(1)	Rank	Sponsored research in universities per capita, 1980-81(2) ($'000)	Rank
Newfoundland	11	7	26	2
Prince Edward Island	-	10	-	10
Nova Scotia	25	3	17	5
New Brunswick	10	9	14	8
Québec	27	2	19	4
Ontario	27	1	22	3
Manitoba	25	4	26	1
Saskatchewan	11	8	10	9
Alberta	22	5	17	6
British Columbia	19	6	15	7
Canada	24		19	

(1) Full-time enrolment for graduate degrees, per ten thousand population (15 years and over) Universities Enrolment and Degrees, 1980-81, Statistics Canada Catalogue No. 81-204, and Estimates of Population by Sex and Age for Canada and the Provinces, June 1980, Population Estimates Section, Demography Division, Statistics Canada.

(2) Financial Statistics of Universities and Colleges, 1980-81, Statistics Canada.

3. Industry

Province	Value added by manufacturing industry per capita, 1979(1)		Current intramural industrial R & D expenditures per employee in primary and secondary industry, 1980(2)	
	($)	Rank	($)	Rank
Newfoundland	846	8	83	8
Prince Edward Island	683	10	200	5
Nova Scotia	1,278	7	81	9
New Brunswick	1,334	6	64	10
Québec	2,691	2	510	3
Ontario	3,779	1	652	1
Manitoba	1,606	4	151	6
Saskatchewan	701	9	121	7
Alberta	1,363	5	556	2
British Columbia	2,369	3	269	4
Canada(3)	2,643		500	

(1) Manufacturing Industries of Canada; National and Provincial Areas, 1979, Statistics Canada Catalogue No. 31-203.
(2) Results of 1980 Industrial R & D survey, Science Statistics Centre, Statistics Canada and The Labour Force, April, 1982, Statistics Canada Catalogue No. 71-001.
(3) Includes the Yukon and Northwest Territories.

4. Federal Government

Province	Expenditures on intramural natural science activities 1980-81(1)	Federal personnel 1980-81(1)	Contracts awarded by the Science Procurement Sector, Department of Supply and Services, 1981-82(2)	
	($'000,000)	Person-years	No.	($'000,000)
Atlantic Provinces	112	2,281	515	24
Québec	59(3)	1,500(3)	395	40
Ontario	166(4)	4,368(4)	1,221	87
Ottawa-Hull	444	9,654	NA	NA
Manitoba	60	1,509	69	4
Saskatchewan	26	703	69	6
Alberta	49	1,268	178	12
British Columbia	72	1,637	578	29
Canada(5)	990	22,944	3,057	205

(1) "Listing of Federal Natural Science Establishments, 1980-81", Science Statistics Centre, Statistics Canada.
(2) Research and Development Bulletin, April 1982, Supply and Services.
(3) Excluding Hull.
(4) Excluding Ottawa.
(5) Includes the Yukon and Northwest Territories.

5. Provincial Research Organizations

Province	Total expenditures 1981(1)	
	($'000)	Rank
Nova Scotia	4,140	7
New Brunswick	4,662	6
Québec	13,882	3
Ontario	22,332	2
Manitoba	3,399	8
Saskatchewan	10,311	4
Alberta	30,065	1
British Columbia	8,055	5
Total	96,846	

(1) Science Statistics, Vol. 6, No. 11, Statistics Canada Catalogue No. 13-003.

6. Sectors Funding R & D, by Region, 1980(1)

Funding Sector	Atlantic provinces	Québec	Ontario	British Columbia	Other Western provinces	Canada (2)
	($000,000)					
Federal government	109	154	591	72	157	1,085
Provincial government ..	4	49	61	24	59	197
Provincial research organizations	-	1	2	-	-	3
Total government	113	204	654	96	217	1,285
Industry	12	295	693	57	188	1,260
Universities	34	96	127	37	68	361
Private non-profit	2	16	29	7	11	64
Foreign	1	27	65	6	24	126
All sectors	161	639	1,569	203	509	3,097

(1) Science Statistics, Vol. 6, No. 10, Statistics Canada Catalogue No. 13-003.
(2) Includes the territories.
NOTE: Totals may not add due to rounding.

7. Sectors Performing R & D, by Region, 1980(1)

Performing sector	Atlantic provinces	Québec	Ontario	British Columbia	Other Western provinces	Canada (2)
	($000,000)					
Federal government	77	66	424	41	106	714
Provincial government .	2	19	33	15	11	80
Provincial research organizations	3	9	10	3	19	43
Total government	82	94	467	58	136	837
Industry	12	352	817	68	235	1,500
Universities	67	182	275	75	135	733
Private non-profit ...	1	10	10	2	4	27
All sectors	161	639	1,569	203	506	3,097

(1) Science Statistics, Vol. 6, No. 10, Statistics Canada Catalogue No. 13-003.
(2) Includes the territories.
NOTE: Totals may not add due to rounding.